Adventures in Science Fiction Series

MEN AGAINST THE STARS

Edited by
MARTIN GREENBERG
Introduced by
WILLY LEY

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HAL CLEMENT
H. B. FYFE
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E. M. HULL
MURRAY LEINSTER
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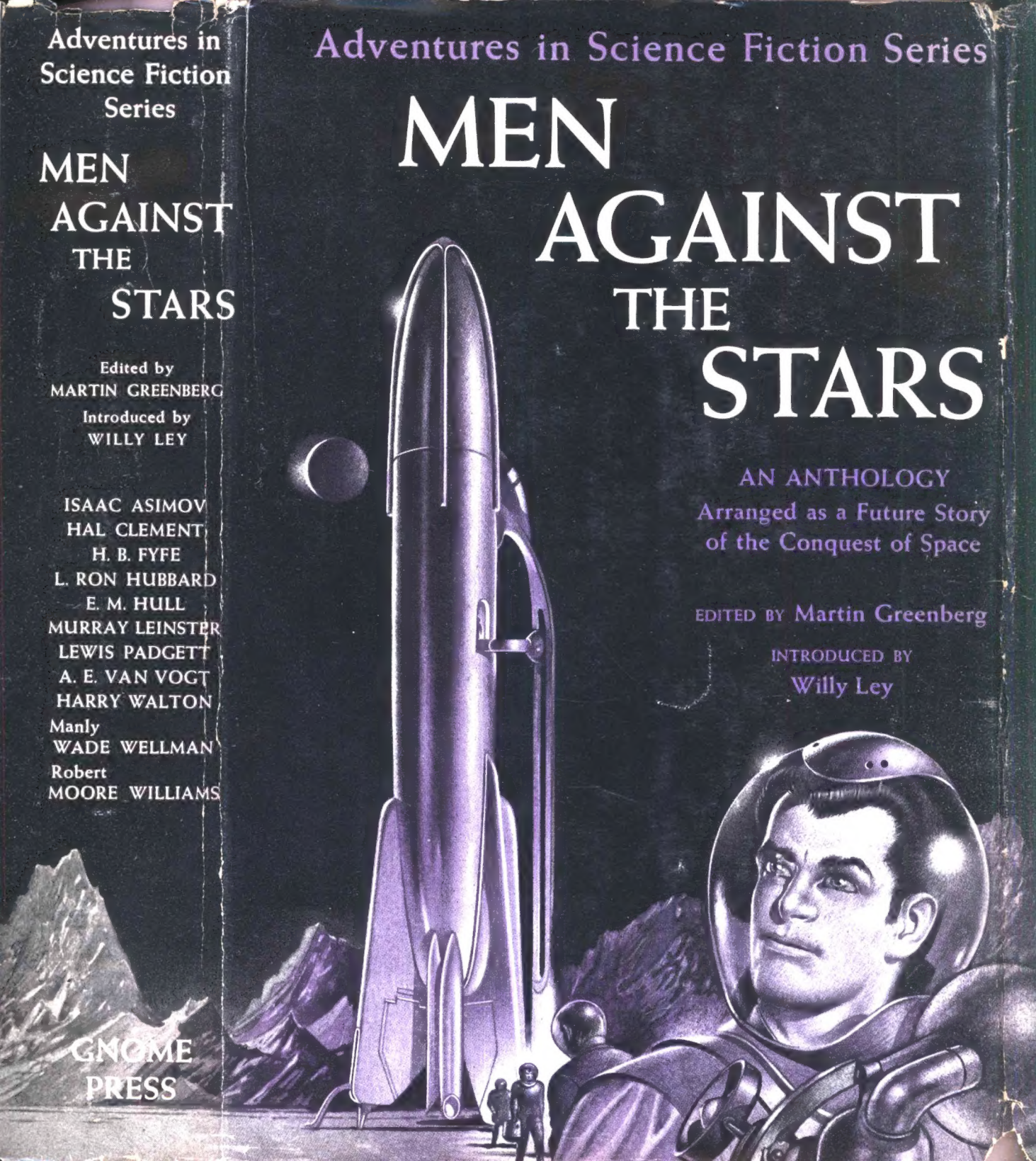
Adventures in Science Fiction Series

MEN AGAINST THE STARS

AN ANTHOLOGY
Arranged as a Future Story
of the Conquest of Space

EDITED BY Martin Greenberg

INTRODUCED BY
Willy Ley



$2.95

MEN AGAINST THE STARS

Edited by
MARTIN GREENBERG
Introduction by
WILLY LEY

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FOREWORD

THIS BOOK WAS PLANNED from the very beginning to be more than just a collection of interesting adventure stories. It was organized around a central idea, one theme which moves logically from story to story. By building upon this unifying theme, we who prepared this book sincerely believe, a new idea in science fiction anthologies has been developed—a science fiction anthology which, taken in its entirety, tells a complete story.

The story which these different authors together tell is the story of the future conquest of space. Interplanetary travel has come nowadays to be accepted as definitely possible, if not inevitable, by people who once considered the thought ridiculously fantastic. For this reason this anthology, arranged coherently and representative of science fiction's concern with every aspect of space travel, should be of interest to everyone.

Willy Ley, in his excellent introduction, traces briefly the scientific evolution of spaceships. The facts mentioned by this noted authority on rocketry lead conclusively to the realization that space travel will be attempted within the lifetime of most of us. As factual preparation for the fiction which follows, his introduction contributes importantly toward fusing the many stories into a believable whole.

The choice and arrangement of the dozen stories in this volume have been carefully considered. Material had to be judged not only on the basis of its contribution to the over-all pattern of the book, but also on its length and availability. The logical sequence of each incident with its appropriate scientific development was of primary importance. The reader, therefore, will find that he is carried on a swift flight of time and space from Willy Ley's firm foundation of fact and the first attempt to reach the moon to the eventual conquest of the entire universe.

If this book seems to be treated too seriously, there is some justification for doing so. No claim is made that these stories are good literature. But we do believe that the value lies in what the various authors have to say, not in the various writing techniques. From a science fiction point of view, the ideas, thoughts and theories are worthy of consideration. These are stories of tomorrow and as

such have more than just transitory entertainment value. In the future there will be other books in the "Adventures in Science Fiction Series" based upon a central theme, such as Atomic Energy, Robots and Time Travel.

The editor's sincere gratitude is here extended to

J. B. Cullum and Charles Dye for aiding in the selection of the material,

David A. Kyle for assisting in the editing and for designing the book,

Scott Meredith, Forrest J. Ackerman and Dirk Wylie literary agencies for obtaining copyrighted material,

Julius Unger for obtaining magazines for research,

Willy Ley, who is the author of *Rockets and Space Travel; The Lungfish, The Dodo and The Unicorn; The Days of Creation; Bombs and Bombing; Shells and Shooting;* and *The Conquest of Space* with Chesley Bonestell, for his splendid introduction,

And to the many friends who gave their criticisms and suggestions.

MARTIN GREENBERG

INTRODUCTION

NEAR THE END of the First World War an American physicist, the late Dr. Robert H. Goddard, wrote a strictly technical report on various aspects of rocket propulsion. That report was published in 1919 by the Smithsonian Institution and it contained a number of remarks and statements about an unmanned rocket to the moon.

People laughed.

In 1923 a German scientist, Prof. Hermann Oberth, published an even more severely technical treatise in which he prophesied manned spaceships, stating that the manufacture of such machines might be profitable under certain conditions. "Such conditions might develop within a few decades."

People laughed.

In 1925 the City Architect of the city of Essen on the Ruhr, Dr. Walter Hohmann, followed up with an equally severe technical treatise on the orbits to be traveled from earth to other planets, on methods of landing on worlds with an atmosphere and worlds without one.

People laughed.

Now it must be understood that not *all* the people laughed. Those that did usually had derived what information they had from third-hand newspaper accounts without ever having seen the original publications or even the second-hand accounts. In fact they would not have been able to read the original publications even if they had been handed to them.

The few that failed to laugh went ahead and progressed from theory to experimentation. Crude and blundering experimentation it was, groping around in an entirely new field of engineering where well-established ideas did not hold true and where "crazy schemes" suddenly proved workable. To make it somewhat more difficult a constant lack of funds had to be accepted as a matter of course. But in spite of the lack of money and in spite of the newness of the whole problem those experimenters did get some early results. And some information about the experimental work wormed its way into the daily papers, via publication in more specialized journals whose editors risked their reputations by publishing it.

People continued to laugh.

They were not only convinced that they were right, they were rather proud of their merriment, for didn't they find themselves in good and famous company? Among the highly amused gentlemen there were professors of engineering and famous novelists, there were MPs and MDs, there were senators with excellent legal training and experience, there were colonels, generals and admirals. Even an aircraft manufacturer or two joined in the chorus.

The contentment of all these hilarious gentlemen ended in the early evening hours of September 8, 1944. On that date the first V-2 rocket crashed down on London, having been fired from a point in The Netherlands, 200 miles away, and having climbed into stratosphere to some sixty miles in the course of its five minute journey.

It turned out later that the Germans had fired two rockets at an interval of a few minutes. One must have malfunctioned and failed to reach its target. But, strangely enough, nobody found anything laughable any more in such a ridiculous fact as a malfunctioning rocket.

On the contrary.

Large rockets suddenly became respectable, because they had hit somebody on the head.

The war ended soon after and the German plans, present and future, became available for study. And they *were* studied! Demand for the original publications which had been the foundation of these actually existing large rockets which soon began to soar even beyond the stratosphere from the White Sands Proving Ground in New Mexico became so large that reprints were made. And ever since the movement has been forward only, skepticism had changed into thirst for detailed information, laughter had given way to breathless wonderment.

Nothing indicated this reversal in the trend of thought—or rather the replacement of a number of quite different things by *thought*—more dramatically than the fact that U. S. Army recruiting posters appeared, showing a spaceship on its way to the moon. And more recently it has been made known that the armed services are studying the idea of artificial satellites with great interest.

We can be quite sure now that the "certain conditions" predicted by Prof. Oberth have arrived and that we shall have spaceships long before the twentieth century has run its course. This is, of course, just what those groups of early enthusiasts have been saying all along, beginning roughly in 1927, but the lines of develop-

ment turned out to be somewhat different from what they had imagined them to be.

When Dr. R. H. Goddard wrote his first Smithsonian publication he entitled it *A method of reaching extreme altitudes* and suggested the use of rockets as instrument carriers for research in those layers of the atmosphere which are inaccessible by any other means. It may be remarked here that the total altitude of our atmosphere is usually taken to be 250 miles. But only the first ten of these 250 miles have any appreciable density. Airplanes, other than rocket propelled, have about reached ten miles. Stratosphere balloons have gone somewhat higher than that. And those small unmanned balloons which carry meteorological instruments as a routine measure also attain roughly ten miles. Every once in a while one of them gets slightly higher, but only the new large plastic balloons of the U. S. Navy (also unmanned and carrying some 70 lbs. of instrumentation) can be counted upon to reach altitudes of 100,000 feet regularly. Everything above 100,000 feet is in the domain of rocket exploration.

Dr. Goddard's main suggestion, therefore, was the instrument-carrying rocket.

Likewise Prof. Oberth devoted a good deal of space in his book to a rocket which he called *Model B* which was also planned as an instrument-carrying rocket. That Dr. Goddard did not describe his planned instrument carrier in detail and that Prof. Oberth described it almost down to the last rivet is unimportant, Oberth did not so much want to publish plans of a specific rocket which would be used for this purpose, he described it in so much detail because he used it as an example for mathematical analysis. He was perfectly well aware of the fact that the real instrument carrying rocket which would be built later might differ greatly from his example.

In addition to this *Model B,* Prof. Oberth also described a large manned rocket which he called *Model E* and which was supposed to be a true spaceship. Making the assumption that a ship like this *Model E* would be placed into an orbit around the earth he could also describe the "station in space." In between there were a few hints and remarks about mail rockets.

A few years later an Austrian engineer, Count Guido von Pirquet, made an analysis of engineering *versus* economical factors and outlined the probable future development by setting a number of consecutive goals. The interesting point of his list was that any one of these consecutive stages could be expected to be economically self-supporting. Count von Pirquet made the comparison that an

unfinished tunnel or bridge was useless, but that a highway supposed to connect five cities would still be useful even if it were pushed only to the point of connecting three cities. Rocket research, fortunately, compared to the highway and not to the bridge.

The idea was that a rocket industry might go on building instrument carriers for a number of years and keep going while researching the problems posed by the next goal, the long-distance mail rocket. And that an industry could keep alive manufacturing mail rockets while doing research on the next problem, the space rocket. The space rocket was supposed to be an instrument carrier again, but this time one which would reach altitudes of several thousand miles.

This sequence carried with it the idea of gradually increasing size, the very largest type of instrument carrying rocket would be about the smallest size of mail rocket and the largest size of mail rocket would be about the smallest size of space rocket. Enlarge the space rocket some more, so that it can carry a pilot, and you get the spaceship.

It was all very logical, but the basic assumption, so basic that it was hardly mentioned at all, was that of peace time development. The second World War not only increased the speed of development, it also turned its logic upside down.

Experimental work in Europe had been started in 1929 and while the engineers who did the actual work often enough followed the line of least resistance the models which took off from the proving ground very decidedly moved in the direction of instrument carrying rockets. The first goal seemed to be in sight.

Then the Nazis took over and rocket research became an item in the military budget. Because of that the emphasis was now on range, instead of altitude. The first military-built German model was not much larger than those that had been built privately before. It was ready in 1933 and was code-named *Aggregate No. 1.* or A-1. It weighed about 330 pounds, was slightly more than 4½ feet long and one foot in diameter. A-2 followed one year later and was only slightly larger, but differed in many essentials. Fired it attained an altitude of 6500 feet. The next German military model, A-3, which followed in 1937, was a rocket 25 feet in length and 2½ feet in diameter, weighing 1650 pounds at take-off. In 1938 it reached an altitude of 40,000 feet and a range of about eleven miles.

This would almost have been an instrument carrying rocket for meteorological purposes. But the ones who financed the work thought of it in terms of artillery. They caused the big jump to

the next model: A-4. It had an overall length of 46 feet, a diameter of about 5½ feet (11 ft. 8 inches when measured over the fins), a take-off weight of 12½ tons. It carried a warhead weighing one ton, could reach slightly more than 200 miles horizontally and a little over 100 miles vertically. It became known to the world not under its proper designation A-4 but under a designation thought up by the German Ministry of Propaganda, namely V-2.

Actual historical development had simply jumped across the first goal. Since then, of course, this gap has been filled to some extent, first by using captured V-2s as instrument carriers, then by constructing smaller rockets along the same lines, like the American-built rockets *Aerobee* and *Nativ*. Simultaneously work turned to a rocket which, while somewhat lighter than V-2, will reach much higher altitudes, the Navy's *Viking*. The *Viking* (at first named *Neptune*) will reach an altitude of about 230 miles which makes it, using the original classification, the "smallest space rocket."

A dozen years of active work did not accomplish the first of the goals originally set, but the first three of them. In addition to that they produced a few sidelines, like take-off help for airplanes and several rocket propelled airplanes, the latter mostly for research purposes.

The question is obvious now: "How will things go on from the space rocket?"

It is not an easy question to answer, even discounting the fact that engineering logic has been upset in the past by "military intervention." Originally it was thought that the space rocket by enlargement in steps of a size still to be determined would develop into the spaceship.

Still, it was likely that the line of development would split at some point. Enlargement of the space rocket could lead to a manned spaceship which would "only" be capable of reaching a maximum distance of say 5000 or 8000 miles from the ground. But it would also lead to an unmanned rocket which would go to the moon and crash there, making a permanent mark of some kind so that it would testify to its own arrival. Obviously at some later time these two lines of development would merge again into the true manned spaceship.

While these problems were still under theoretical investigation the theory took a surprising turn. There was that idea of the orbital rocket which was supposed to circle earth more or less permanently. It was supposed to be used mostly as an observer's platform to see what was going on on earth (it would be a vantage point, for ex-

ample, in determining the general meteorological conditions over the whole planet or to watch for iceberg movements) and also as a testing station for space equipment. Then it became evident, and the more evident the longer one thought about it, that such an orbital station would be a very superior research laboratory for many lines of research. Then the idea cropped up that such a station in space would make a fine fuel depot for spaceships.

At that point a mathematical investigation revealed something else. If one assumed that rockets would have to depend on known chemical fuels (atomic energy seemed very far in the future and even now nobody really seems to know how it could be used for rocket propulsion) it turned out that high-altitude rockets, long-range rockets and space rockets could be built. Man-carrying space rockets were possible too and even the unmanned moon rocket. But the manned moonship which could land on the moon and then take off again seemed to be out of reach of present day fuels.

The "station in space," however, which had originally looked like a late accomplishment, preceded by the unmanned moon rocket and even by the manned moonship, was fully within reach of present day fuels. I do not mean to say that it looked "easy," but it was possible, while the manned moonship and especially the ship to Mars or to Venus were not. However, and that was the really important turn of events, once you had accomplished the "station in space" as a re-fueling place, the trips to the moon from there, and even trips to Mars and to Venus were not only distinctly possible, but they were actually easier than the establishing of the station itself.

Since the logic involved in all this was mathematical logic it had to be accepted. And it gradually was accepted. It now looks as if the next step after the space rocket is going to be the station in space. In all probability an unmanned station will precede the manned station. Because such a station has so many uses it will certainly be built, but the logic which caused its conception in the first place might be knocked out once more by events. At present the sequence looks like this: space rocket, station in space, moonship.

The basic assumption in this sequence has been mentioned: chemical fuels only. If atomic energy enters this field the sequence might be different once more.

But it always ends up with the spaceship.

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TRENDS

The first manned-rocket ship to the moon meant more to mankind than just the beginning of the conquest of space.

JOHN HARMAN WAS SITTING at his desk, brooding, when I entered the office that day. It had become a common sight, by then, to see him staring out at the Hudson, head in hand, a scowl contorting his face—all too common. It seemed unfair for the little bantam to be eating his heart out like that day after day, when by rights he should have been receiving the praise and adulation of the world.

I flopped down into a chair. "Did you see the editorial in today's *Clarion,* boss?"

He turned weary, bloodshot eyes toward me. "No, I haven't. What do they say? Are they calling the vengeance of God down upon me again?" His voice dripped with bitter sarcasm.

"They're going a little farther *now,* boss," I answered. "Listen to this:

" 'Tomorrow is the day of John Harman's attempt at profaning the heavens. Tomorrow, in defiance of world opinion and world conscience, this man will defy God.

" 'It is not given to man to go wheresoever ambition and desire lead him. There are things forever denied him, and aspiring to the stars is one of these. Like Eve, John Harman wishes to eat of the forbidden fruit, and like Eve he will suffer due punishment therefor.

" 'But it is not enough, this mere talk. If we allow him thus to brook the vengeance of God, the trespass is mankind's and not Harman's alone. In allowing him to carry out his evil

designs, we make ourselves accessory to the crime, and Divine vengeance will fall on all alike.

" 'It is, therefore, essential that immediate steps be taken to prevent Harman from taking off in his so-called rocketship tomorrow. The government in refusing to take such steps may force violent action. If it will make no move to confiscate the rocketship, or to imprison Harman, our enraged citizenry may have to take matters into their own hands—' "

Harman sprang from his seat in a rage and, snatching the paper from my hands, threw it into the corner furiously. "It's an open call to a lynching," he raved. "Look at this!"

He cast five or six envelopes in my direction. One glance sufficed to tell what they were.

"More death threats?" I asked.

"Yes, exactly that. I've had to arrange for another increase in the police patrol outside the building and for a motorcycle police escort when I cross the river to the testing ground tomorrow."

He marched up and down the room with agitated stride. "I don't know what to do, Clifford. I've worked on the *Prometheus* almost ten years. I've slaved, spent a fortune of money, given up all that makes life worth while—and for what? So that a bunch of fool revivalists can whip up public sentiment against me until my very life isn't safe."

"You're in advance of the times, boss," I shrugged my shoulders in a resigned gesture which made him whirl upon me in a fury.

"What do you mean 'in advance of the times'? This is 1973. The world has been ready for space travel for half a century now. Fifty years ago, people were talking, dreaming of the day when man could free himself of Earth and plumb the depths of space. For fifty years, science has inched toward this goal, and now . . . now I finally have it, and behold! you say the world is not ready for me."

"The '20s and '30s were years of anarchy, decadence, and

misrule, if you remember your history," I reminded him gently. "You cannot accept them as criteria."

"I know, I know. You're going to tell me of the First War of 1914, and the Second of 1940. It's an old story to me; my father fought in the Second and my grandfather in the First. Nevertheless, those were the days when science *flourished.* Men were not afraid then; somehow they dreamed and dared. There was no such thing as conservatism when it came to matters mechanical and scientific. No theory was too radical to advance, no discovery too revolutionary to publish. Today, dry rot has seized the world when a great vision, such as space travel, is hailed as 'defiance of God.' "

His head sank slowly down, and he turned away to hide his trembling lips and the tears in his eyes. Then he suddenly straightened again, eyes blazing: "But I'll show them. I'm going through with it, in spite of Hell, Heaven and Earth. I've put too much into it to quit now."

"Take it easy, boss," I advised. "This isn't going to do you any good tomorrow, when you get into that ship. Your chances of coming out alive aren't too good now, so what will they be if you start out worn to pieces with excitement and worry?"

"You're right. Let's not think of it any more. Where's Shelton?"

"Over at the Institute arranging for the special photographic plates to be sent us."

"He's been gone a long time, hasn't he?"

"Not especially; but listen, boss, there's something wrong with him. I don't like him."

"Poppycock! He's been with me two years, and I have no complaints."

"All right." I spread my hands in resignation. "If you won't listen to me, you won't. Just the same I caught him reading one of those infernal pamphlets Otis Eldredge puts out. You know the kind: 'Beware, O mankind, for judgment draws near. Punishment for your sins is at hand. Repent and be saved.' And all the rest of the time-honored junk."

Harman snorted in disgust. "Cheap tub-thumping revivalist! I suppose the world will never outgrow his type—not while sufficient morons exist. Still you can't condemn Shelton just because he reads it. I've read them myself on occasion."

"He *says* he picked it up on the sidewalk and read it in 'idle curiosity,' but I'm pretty sure I saw him take it out of his wallet. Besides, he goes to church every Sunday."

"Is *that* a crime? Everyone does, nowadays!"

"Yes, but not to the Twentieth Century Evangelical Society. That's Eldredge's."

That jolted Harman. Evidently, it was the first he had heard of it. "Say, that *is* something, isn't it? We'll have to keep an eye on him, then."

But after that, things started to happen, and we forgot all about Shelton—until it was too late.

There was nothing much left to do that last day before the test, and I wandered into the next room, where I went over Harman's final report to the Institute. It was my job to correct any errors or mistakes that crept in, but I'm afraid I wasn't very thorough. To tell the truth, I couldn't concentrate. Every few minutes, I'd fall into a brown study.

It seemed queer, all this fuss over space travel. When Harman had first announced the approaching perfection of the *Prometheus,* some six months before, scientific circles had been jubilant. Of course, they were cautious in their statements and qualified everything they said, but there was real enthusiasm.

However, the masses didn't take it that way. It seems strange, perhaps, to you of the twenty-first century, but perhaps we should have expected it in those days of '73. People weren't very progressive then. For years there had been a swing toward religion, and when the churches came out unanimously against Harman's rocket—well, there you were.

At first, the opposition confined itself *to* the churches and we thought it might play itself out. But it didn't. The papers

got hold of it, and literally spread the gospel. Poor Harman became an anathema to the world in a remarkably short time, and then his troubles began.

He received death threats, and warnings of divine vengeance every day. He couldn't walk the streets in safety. Dozens of sects, to none of which he belonged—he was one of the very rare free-thinkers of the day, which was another count against him—excommunicated him and placed him under special interdict. And, worst of all, Otis Eldredge and his Evangelical Society began stirring up the populace.

Eldredge was a queer character—one of those geniuses, in their way, that arise every so often. Gifted with a golden tongue and a sulphurous vocabulary, he could fairly hypnotize a crowd. Twenty thousand people were so much putty in his hands, could he only bring them within earshot. And for four months, he thundered against Harman; for four months, a pouring stream of denunciation rolled forth in oratorical frenzy. And for four months, the temper of the world rose.

But Harman was not to be daunted. In his tiny, five-foot-two body, he had enough spirit for five six-footers. The more the wolves howled, the firmer he held his ground. With almost divine—his enemies said, diabolical—obstinacy, he refused to yield an inch. Yet his outward firmness was to me, who knew him, but an imperfect concealment of the great sorrow and bitter disappointment within.

The ring of the doorbell interrupted my thoughts at that point and brought me to my feet in surprise. Visitors were very few those days.

I looked out the window and saw a tall, portly figure talking with Police Sergeant Cassidy. I recognized him at once as Howard Winstead, head of the Institute. Harman was hurrying out to greet him, and after a short exchange of phrases, the two entered the office. I followed them in, being rather curious as to what could have brought Winstead, who was more politician than scientist, here.

Winstead didn't seem very comfortable, at first; not his usual suave self. He avoided Harman's eyes in an embarrassed manner and mumbled a few conventionalities concerning the weather. Then he came to the point with direct, undiplomatic bluntness.

"John," he said, "how about postponing the trial for a time?"

"You really mean abandoning it altogether, don't you? Well, I won't, and that's final."

Winstead lifted his hand. "Wait now, John, don't get excited. Let me state my case. I know the Institute agreed to give you a free hand, and I know that you paid at least half the expenses out of your own pocket, but—you can't go through with it."

"Oh, can't I, though?" Harman snorted derisively.

"Now listen, John, you know your science, but you don't know your human nature, and I do. This is not the world of the 'Mad Decades,' whether you realize it or not. There have been profound changes since 1940." He swung into what was evidently a carefully prepared speech.

"After the First World War, you know, the world as a whole swung away from religion and toward freedom from convention. People were disgusted and disillusioned, cynical and sophisticated. Eldredge calls them 'wicked and sinful.' In spite of that, science flourished—some say it always fares best in such an unconventional period. From *its* standpoint it was a 'Golden Age.'

"However, you know the political and economic history of the period. It was a time of political chaos and international anarchy; a suicidal, brainless, insane period—and it culminated in the Second World War. And just as the First War led to a period of sophistication, so the Second initiated a return to religion.

"People were disgusted with the 'Mad Decades.' They had had enough of it, and feared, beyond all else, a return to it. To remove that possibility, they put the ways of those decades be-

hind them. Their motives, you see, were understandable and laudable. All the freedom, all the sophistication, all the lack of convention were gone—swept away clean. We are living now in a second Victorian age; and naturally so, because human history goes by swings of the pendulum and this is the swing toward religion and convention.

"One thing only is left over since those days of half a century ago. That one thing is the respect of humanity for science. We have prohibition; smoking for women is outlawed; cosmetics are forbidden; low dresses and short skirts are unheard of; divorce is frowned upon. But science has not been confined —*as yet.*

"It behooves science, then, to be circumspect, to refrain from arousing the people. It will be very easy to make them believe—and Otis Eldredge has come perilously close to doing it in some of his speeches—that it was science that brought about the horrors of the Second World War. Science outstripped culture, they will say, technology outstripped sociology, and it was that unbalance that came so near to destroying the world. Somehow, I am inclined to believe they are not so far wrong, at that.

"But do you know what would happen, if it ever *did* come to that? Scientific research may be forbidden; or, if they don't go that far, it will certainly be so strictly regulated as to stifle in its own decay. It will be a calamity from which humanity would not recover for a millennium.

"And it is your trial flight that may precipitate all this. You are arousing the public to a stage where it will be difficult to calm them. I warn you, John. The consequences will be on your head."

There was absolute silence for a moment and then Harman forced a smile. "Come, Howard, you're letting yourself be frightened by shadows on the wall. Are you trying to tell me that it is your serious belief that the world as a whole is ready to plunge into a second Dark Ages? After all, the intelligent men are on the side of science, aren't they?"

"If they are, there aren't many of them left from what I see." Winstead drew a pipe from his pocket and filled it slowly with tobacco as he continued: "Eldredge formed a League of the Righteous two months ago—they call it the L. R.—and it has grown unbelievably. *Twenty million is its membership in the United States alone.* Eldredge boasts that after the next election Congress will be his; and there seems to be more truth than bluff in that. Already there has been strenuous lobbying in favor of a bill outlawing rocket experiments, and laws of that type have been enacted in Poland, Portugal, and Rumania. Yes, John, we are perilously close to open persecution of science." He was smoking now in rapid, nervous puffs.

"But if I succeed, Howard, if I succeed! What then?"

"Bah! You know the chances for that. Your own estimate gives you only one chance in ten of coming out alive."

"What does that signify? The next experimenter will learn by my mistakes, and the odds will improve. That's the scientific method."

"The mob doesn't know anything about the scientific method; and they don't want to know. Well, what do you say? Will you call it off?"

Harman sprang to his feet, his chair tumbling over with a crash. "Do you know what you ask? Do you want me to give up my life's work, my dream, just like that? Do you think I'm going to sit back and wait for your *dear* public to become benevolent? Do you think they'll change in *my* lifetime?

"Here's my answer: I have an inalienable right to pursue knowledge. Science has an inalienable right to progress and develop without interference. The world, in interfering with me, is wrong; I am right. And it shall go hard, but I *will not* abandon my rights."

Winstead shook his head sorrowfully. "You're wrong, John, when you speak of 'inalienable' rights. What you call a 'right' is merely a *privilege, generally agreed upon.* What society accepts, is right; what it does not, is wrong."

"Would your friend, Eldredge, agree to such a definition of his 'righteousness'?" questioned Harman bitterly.

"No, he would not, but that's irrelevant. Take the case of those African tribes who used to be cannibals. They were brought up as cannibals, have the long tradition of cannibalism, and their society accepts the practice. To *them,* cannibalism is *right,* and why shouldn't it be? So you see how relative the whole notion is, and how inane your conception of 'inalienable' rights to perform experiments is."

"You know, Howard, you missed your calling when you didn't become a lawyer." Harman was really growing angry. "You've been bringing out every moth-eaten argument you can think of. For God's sake, man, are you trying to pretend that it is a crime to refuse to run with the crowd? Do you stand for absolute uniformity, ordinariness, orthodoxy, commonplaceness? Science would die far sooner under the program you outline than under governmental prohibition."

Harman stood up and pointed an accusing finger at the other. "You're betraying science and the tradition of those glorious rebels: Galileo, Darwin, Einstein and their kind. My rocket leaves tomorrow on schedule in spite of you and every other stuffed shirt in the United States. That's that, and I refuse to listen to you any longer. So you can just get out."

The head of the Institute, red in the face, turned to me. "You're my witness, young man, that I warned this obstinate nitwit, this . . . this hare-brained fanatic." He spluttered a bit, and then strode out, the picture of fiery indignation.

Harman turned to me when he had gone: "Well, what do *you* think? I suppose you agree with him."

There was only one possible answer and I made it: "You're not paying me to do anything else but follow orders, boss. I'm sticking with you."

Just then Shelton came in and Harman packed us both off to go over the calculations of the orbit of flight for the umpteenth time, while he himself went off to bed.

The next day, July 15th, dawned in matchless splendor, and Harman, Shelton, and myself were in an almost gay mood as we crossed the Hudson to where the *Prometheus*—surrounded by an adequate police guard—lay in gleaming grandeur.

Around it, roped off at an apparently safe distance, rolled a crowd of gigantic proportions. Most of them were hostile, raucously so. In fact, for one fleeting moment, as our motorcycle police escort parted the crowds for us, the shouts and imprecations that reached our ears almost convinced me that we should have listened to Winstead.

But Harman paid no attention to them at all, after one supercilious sneer at a shout of: "There goes John Harman, son of Belial." Calmly, he directed us about our task of inspection. I tested the foot-thick outer walls and the air locks for leaks, then made sure the air purifier worked. Shelton checked up on the repellent screen and the fuel tanks. Finally, Harman tried on the clumsy spacesuit, found it suitable, and announced himself ready.

The crowd stirred. Upon a hastily erected platform of wooden planks piled in confusion by some in the mob, there rose up a striking figure. Tall and lean; with thin, ascetic countenance; deep-set, burning eyes, peering and half closed; a thick, white mane crowning all—it was Otis Eldredge. The crowd recognized him at once and many cheered. Enthusiasm waxed and soon the entire turbulent mass of people shouted themselves hoarse over him.

He raised a hand for silence, turned to Harman, who regarded him with surprise and distaste, and pointed a long, bony finger at him:

"John Harman, son of the devil, spawn of Satan, you are here for an evil purpose. You are about to set out upon a blasphemous attempt to pierce the veil beyond which man is forbidden to go. You are tasting of the forbidden fruit of Eden and beware that you taste not of the fruits of sin."

The crowd cheered him to the echo and he continued:

"The finger of God is upon you, John Harman. He shall not allow His works to be defiled. You die today, John Harman." His voice rose in intensity and his last words were uttered in truly prophetlike fervor.

Harman turned away in disdain. In a loud, clear voice, he addressed the police sergeant: "Is there any way, officer, of removing these spectators. The trial flight may be attended by some destruction because of the rocket blasts, and they're crowding too close."

The policeman answered in a crisp, unfriendly tone: "If you're afraid of being mobbed, say so, Mr. Harman. You don't have to worry, though, we'll hold them back. And as for danger —from *that* contraption—" He sniffed loudly in the direction of the *Prometheus,* evoking a torrent of jeers and yells.

Harman said nothing further, but climbed into the ship in silence. And when he did so, a queer sort of stillness fell over the mob; a palpable tension. There was no attempt at rushing the ship, an attempt I had thought inevitable. On the contrary, Otis Eldredge himself shouted to everyone to move back.

"Leave the sinner to his sins," he shouted. " 'Vengeance is mine,' saith the Lord."

As the moment approached, Shelton nudged me. "Let's get out of here," he whispered in a strained voice. "Those rocket blasts are poison." Saying this, he broke into a run, beckoning anxiously for me to follow.

We had not yet reached the fringes of the crowd when there was a terrific roar behind me. A wave of heated air swept over me. There was the frightening hiss of some speeding object past my ear, and I was thrown violently to the ground. For a few moments I lay dazed, my ears ringing and my head reeling.

When I staggered drunkenly to my feet again, it was to view a dreadful sight. Evidently, the entire fuel supply of the *Prometheus* had exploded at once, and where it had lain a moment ago there was now only a yawning hole. The ground

was strewn with wreckage. The cries of the hurt were heart-rending and the mangled bodies—but I won't try to describe those.

A weak groan at my feet attracted my attention. One look, and I gasped in horror, for it was Shelton, the back of his head a bloody mass.

"I did it." His voice was hoarse and triumphant but withal so low that I could scarcely hear it. "I did it. I broke open the liquid-oxygen compartments and when the spark went through the acetylide mixture the whole cursed thing exploded." He gasped a bit and tried to move but failed. "A piece of wreckage must have hit me, but I don't care. I'll die knowing that—"

His voice was nothing more than a rasping rattle, and on his face was the ecstatic look of a martyr. He died then, and I could not find it in my heart to condemn him.

It was then I first thought of Harman. Ambulances from Manhattan and from Jersey City were on the scene, and one had sped to a wooden patch some five hundred yards distant where, caught in the treetops, lay a splintered fragment of the *Prometheus'* forward compartment. I limped there as fast as I could, but they had dragged out Harman and clanged away long before I could reach them.

After that, I didn't stay. The disorganized crowd had no thought but for the dead and wounded *now,* but when they recovered, and bent their thoughts to revenge, my life would not be worth a straw. I followed the dictates of the better part of valor and quietly disappeared.

The next week was a hectic one for me. During that time, I lay in hiding at the home of a friend, for it would have been more than my life was worth to allow myself to be seen and recognized. Harman, himself, lay in a Jersey City hospital, with nothing more than superficial cuts and bruises—thanks to the backward force of the explosion and the saving clump of trees which cushioned the fall of the *Prometheus.* It was on him that the brunt of the world's wrath fell.

New York, and the rest of the world also, just about went

crazy. Every last paper in the city came out with gigantic headlines, "28 Killed, 73 Wounded—the Price of Sin," printed in blood-red letters. The editorials howled for Harman's life, demanding he be arrested and tried for first-degree murder.

The dreaded cry of "Lynch him!" was raised throughout the five boroughs, and milling thousands crossed the river and converged on Jersey City. At their head was Otis Eldredge, both legs in splints, addressing the crowd from an open automobile as they marched. It was a veritable army.

Mayor Carson of Jersey City called out every available policeman and phoned frantically to Trenton for the State militia. New York clamped down on every bridge and tunnel leaving the city—but not till after many thousands had left.

There were pitched battles on the Jersey coast that sixteenth of July. The vastly outnumbered police clubbed indiscriminately but were gradually pushed back and back. Mounties rode down upon the mob relentlessly but were swallowed up and pulled down by sheer force of numbers. Not until tear gas was used, did the crowd halt—and even then they did not retreat.

The next day, martial law was declared, and the State militia entered Jersey City. That was the end for the lynchers. Eldredge was called to confer with the mayor, and after the conference ordered his followers to disperse.

"In a statement to the newspapers, Mayor Carson said: "John Harman must needs suffer for his crime, but it is essential that he do so legally. Justice must take its course, and the State of New Jersey will take all necessary measures."

By the end of the week, normality of a sort had returned and Harman slipped out of the public spotlight. Two more weeks and there was scarcely a word about him in the newspapers, excepting such casual references to him in the discussion of the new Zittman antirocketry bill that had just passed both houses of Congress by unanimous votes.

Yet he remained in the hospital still. No legal action had

been taken against him, but it began to appear that a sort of indefinite imprisonment "for his own protection" might be his eventual fate. Therefore, I bestirred myself to action.

Temple Hospital is situated in a lonely and outlying district of Jersey City, and on a dark, moonless night I experienced no difficulty at all in invading the grounds unobserved. With a facility that surprised me, I sneaked in through a basement window, slugged a sleepy interne into insensibility and proceeded to Room 15E, which was listed in the books as Harman's.

"Who's there?" Harman's surprised shout was music in my ears.

"Sh! Quiet! It's I, Cliff McKenny."

"You! What are you doing here?"

"Trying to get you out. If I don't, you're liable to stay here the rest of your life. Come on, let's go."

I was hustling him into his clothes while we were speaking, and in no time at all we were sneaking down the corridor. We were out safely and into my waiting car before Harman collected his scattered wits sufficiently to begin asking questions.

"What's happened since that day?" was the first question. "I don't remember a thing after starting the rocket blasts until I woke up in the hospital."

"Didn't they tell you anything?"

"Not a damn thing," he swore. "I asked until I was hoarse."

So I told him the whole story from the explosion on. His eyes were wide with shocked surprise when I told of the dead and wounded, and filled with wild rage when he heard of Shelton's treachery. The story of the riots and attempted lynching evoked a muffled curse from between set lips.

"Of course, the papers howled 'murder,'" I concluded, "but they couldn't pin *that* on you. They tried manslaughter, but there were too many eye-witnesses that had heard your request for the removal of the crowd and the police sergeant's absolute refusal to do so. That, of course, absolved you from all

blame. The police sergeant himself died in the explosion, and they couldn't make him the goat.

"Still, with Eldredge yelling for your hide, you're never safe. It would be best to leave while able."

Harman nodded his head in agreement. "Eldredge survived the explosion, did he?"

"Yes, worse luck. He broke both legs, but it takes more than that to shut his mouth."

Another week had passed before I reached our future haven—my uncle's farm in Minnesota. There, in a lonely and out-of-the-way rural community, we stayed while the hullabaloo over Harman's disappearance gradually died down and the perfunctory search for us faded away. The search, by the way, was short indeed, for the authorities seemed more relieved than concerned over the disappearance.

Peace and quiet did wonders with Harman. In six months he seemed a new man—quite ready to consider a second attempt at space travel. Not all the misfortunes in the world could stop him, it seemed, once he had his heart set on something.

"My mistake the first time," he told me one winter's day, "lay in announcing the experiment. I should have taken the temper of the people into account, as Winstead said. This time, however"—he rubbed his hands and gazed thoughtfully into the distance—"I'll steal a march on them. The experiment will be performed in secrecy—absolute secrecy."

I laughed grimly. "It would have to be. Do you know that all future experiments in rocketry, even entirely theoretical research, is a crime punishable by death?"

"Are you afraid, then?"

"Of course not, boss. I'm merely stating a fact. And here's another plain fact. We two can't build a ship all by ourselves, you know."

"I've thought of that and figured a way out, Cliff. What's more, I can take care of the money angle, too. You'll have to do some traveling, though.

"First, you'll have to go to Chicago and look up the firm of Roberts & Scranton and withdraw everything that's left of my father's inheritance, which," he added in a rueful aside, "is more than half gone on the first ship. Then, locate as many of the old crowd as you can: Harry Jenkins, Joe O'Brien, Neil Stanton—all of them. And get back as quickly as you can. I am tired of delay."

Two days later, I left for Chicago. Obtaining my uncle's consent to the entire business was a simple affair. "Might as well be strung up for a herd of sheep as for a lamb," he grunted, "so go ahead. I'm in enough of a mess now and can afford a bit more, I guess."

It took quite a bit of traveling and even more smooth talk and persuasion before I managed to get four men to come: the three mentioned by Harman and one other, a Saul Simonoff. With that skeleton force and with the half million still left Harman out of the reputed millions left him by his father, we began work.

The building of the *New Prometheus* is a story in itself —a long story of five years of discouragement and insecurity. Little by little, buying girders in Chicago, beryl-steel plates in New York, a vanadium cell in San Francisco, miscellaneous items in scattered corners of the nation, we constructed the sister ship to the ill-fated *Prometheus.*

The difficulties in the way were all but insuperable. To prevent drawing suspicion down upon us, we had to spread our purchases over periods of time, and to see to it, as well, that the orders were made out to various places. For this we required the co-operation of various friends, who, to be sure, did not know at the time for exactly what purpose the purchases were being used.

We had to synthesize our own fuel, ten tons of it, and that was perhaps the hardest job of all; certainly it took the most time. And finally, as Harman's money dwindled, we came up against our biggest problem—the necessity of economizing. From the beginning we had known that we could never make

the *New Prometheus* as large or as elaborate as the first ship had been, but it soon developed that we would have to reduce its equipment to a point perilously close to the danger line. The repulsive screen was barely satisfactory and all attempts at radio communication were perforce abandoned.

And as we labored through the years, there in the backwoods of northern Minnesota, the world moved on, and Winstead's prophecies proved to have hit amazingly near the mark.

The events of those five years—from 1973 to 1978—are well known to the schoolboys of today, the period being the climax of what we now call the "Neo-Victorian Age." The happenings of those years seem well-nigh unbelievable as we look back upon them now.

The outlawing of all research on space travel came in the very beginning, but was a bare start compared to the antiscientific measures taken in the ensuing years. The next congressional elections, those of 1974, resulted in a Congress in which Eldredge controlled the House and held the balance of power in the Senate.

Hence, no time was lost. At the first session of the ninety-third Congress, the famous Stonely-Carter bill was passed. It established the Federal Scientific Research Investigatory Bureau—the FSRIB—which was given full power to pass on the legality of all research in the country. Every laboratory, industrial or scholastic, was required to file information, in advance, on all projected research before this new bureau, which could, and did, ban absolutely all such as it disapproved of.

The inevitable appeal to the supreme court came on November 9, 1974, in the case of Westly vs. Simmons, in which Joseph Westly of Stanford upheld his right to continue his investigations on atomic power on the grounds that the Stonely-Carter act was unconstitutional.

How we five, isolated amid the snowdrifts of the Middle West, followed that case! We had all the Minneapolis and St. Paul papers sent to us—always reaching us two days late—and

devoured every word of print concerning it. For the two months of suspense work ceased entirely on the *New Prometheus.*

It was rumored at first that the court would declare the act unconstitutional, and monster parades were held in every large town against this eventuality. The League of the Righteous brought its powerful influence to bear—and even the supreme court submitted. It was five to four for constitutionality. *Science strangled by the vote of one man.*

And it was strangled beyond a doubt. The members of the bureau were Eldredge men, heart and soul, and nothing that would not have immediate industrial use was passed.

"Science has gone too far," said Eldredge in a famous speech at about that time. "We must halt it indefinitely, and allow the world to catch up. Only through that and trust in God may we hope to achieve universal and permanent prosperity."

But this was one of Eldredge's last statements. He had never fully recovered from the broken legs he received that fateful day in July of '73, and his strenuous life since then strained his constitution past the breaking point. On February 2, 1976, he passed away amid a burst of mourning unequaled since Lincoln's assassination.

His death had no immediate effect on the course of events. The rules of the FSRIB grew, in fact, in stringency as the years passed. So starved and choked did science become, that once more colleges found themselves forced to reinstate philosophy and the classics as the chief studies—and at that the student body fell to the lowest point since the beginning of the twentieth century.

These conditions prevailed more or less throughout the civilized world, reaching even lower depths in England, and perhaps least depressing in Germany, which was the last to fall under the "Neo-Victorian" influence.

The nadir of science came in the spring of 1978, a bare month before the completion of the *New Prometheus,* with the passing of the "Easter Edict"—it was issued the day before Easter. By it, *all* independent research or experimentation was

absolutely forbidden. The FSRIB thereafter reserved the right to allow only such research as it *specifically requested.*

John Harman and I stood before the gleaming metal of the *New Prometheus* that Easter Sunday; I in the deepest gloom, and he in an almost jovial mood.

"Well, Clifford, my boy," said he, "the last ton of fuel, a few polishing touches, and I am ready for my second attempt. This time there will be no Sheltons among us." He hummed a hymn. That was all the radio played those days, and even we rebels sang them from sheer frequency of repetition.

I grunted sourly: "It's no use, boss. Ten to one, you end up somewhere in space, and even if you come back, you'll most likely be hung by the neck. We can't win." My head shook dolefully from side to side.

"Bah! This state of affairs can't last, Cliff."

"I think it will. Winstead was right that time. The pendulum swings, and since 1945 it's been swinging against us. We're ahead of the times—or behind them."

"Don't speak of that fool, Winstead. You're making the same mistake he did. Trends are things of centuries and millenniums, not years or decades. For five hundred years we have been moving toward science. You can't reverse that in thirty years."

"Then what are we doing?" I asked sarcastically.

"We're going through a momentary reaction following a period of too-rapid advance in the Mad Decades. Just such a reaction took place in the Romantic Age—the first Victorian Period—following the too-rapid advance of the eighteenth-century Age of Reason."

"Do you really think so?" I was shaken by his evident self-assurance.

"Of course. This period has a perfect analogy in the spasmodic "revivals" that used to hit the small towns in America's Bible Belt a century or so ago. For a week, perhaps, everyone would get religion and virtue would reign triumphant. Then,

one by one, they would backslide and the Devil would resume his sway.

"In fact, there are symptoms of backsliding even now. The L. R. has indulged in one squabble after another since Eldredge's death. There have been half a dozen schisms already. The very extremities to which those in power are going are helping us, for the country is rapidly tiring of it."

And that ended the argument—I in total defeat, as usual.

A month later, the *New Prometheus* was complete. It was nowhere near as glittering and as beautiful as the original, and bore many a trace of makeshift workmanship, but we were proud of it—proud and triumphant.

"I'm going to try again, men"—Harman's voice was husky, and his little frame vibrant with happiness—"and I may not make it, but for that I don't care." His eyes shone in anticipation. "I'll be shooting through the void at last, and the dream of mankind will come true. Out around the Moon and back; the first to see the other side. It's worth the chance."

"You won't have fuel enough to land on the Moon, boss, which is a pity," I said.

"That doesn't matter. There'll be other flights after this, better prepared and better equipped."

At that a pessimistic whisper ran through the little group surrounding him, to which he paid no attention.

"Good-by," he said. "I'll be seeing you." And with a cheerful grin he climbed into the ship.

Fifteen minutes later, the five of us sat about the living-room table, frowning, lost in thought, eyes gazing out the building at the spot where a burned section of soil marked the spot where a few minutes earlier the *New Prometheus* had lain.

Simonoff voiced the thought that was in the mind of each one of us: Maybe it would be better for him *not* to come back. He won't be treated very well if he does, I think." And we all nodded in gloomy assent.

How foolish that prediction seems to me now from the hindsight of three decades.

The rest of the story is really not mine, for I did not see Harman again until a month after his eventful trip ended in a safe landing.

It was almost thirty-six hours after the take-off that a screaming projectile shot its way over Washington and buried itself in the mud just across the Potomac.

Investigators were at the scene of the landing within fifteen minutes, and in another fifteen minutes the police were there, for it was found that the projectile was a *rocketship*. They stared in involuntary awe at the tired, disheveled man who staggered out in near-collapse.

There was utter silence while he shook his fist at the gawking spectators and shouted: "Go ahead, hang me, fools. But I've reached the Moon, and you can't hang *that*. Get the FSRIB. Maybe they'll declare the flight illegal and, therefore, nonexistent." He laughed weakly and suddenly collapsed.

Someone shouted: "Take him to a hospital. He's sick." In stiff unconsciousness Harman was bundled into a police car and carried away, while the police formed a guard about the rocketship.

Government officials arrived and investigated the ship, read the log, inspected the drawings and photograph he had taken of the Moon, and finally departed in silence. The crowd grew and the word spread that a man had reached the Moon.

Curiously enough, there was little resentment of the fact. Men were impressed and awed; the crowd whispered and cast inquisitive glances at the dim crescent of Luna, scarcely seen in the bright sunlight. Over all, an uneasy pall of silence, the silence of indecision, lay.

Then, at the hospital, Harman revealed his identity, and the fickle world went wild. Even Harman himself was stunned in surprise at the rapid change in the world's temper. It seemed almost incredible, and yet it was true. Secret discontent, combined with a heroic tale of man against overwhelming odds—the sort of tale that had stirred man's soul since the beginning of time—served to sweep everyone into an ever-swelling current

of anti-Victorianism. And Eldredge was dead—no other could replace him.

I saw Harman at the hospital shortly after that. He was propped up and still half buried with papers, telegrams and letters. He grinned at me and nodded. "Well, Cliff," he whispered, "the pendulum swung back again."

Manly Wade Wellman

MEN AGAINST THE STARS

The road to the planets was marked by beacons—the brief, bright pyres of men and ships that never came back.

In ship No. Fifty-One, half-way from Moon to Mars, four stubbled faces turned to a common, grinning regard as the pounding roar of the rockets died away at last. The skipper, the rocketman, the navigator, the spacehand.

"So far so good," said the skipper grimly. "We've reached speed. But the fuel may decide to go any minute. And that'll be—that."

Even as he spoke, the fuel—frightful unstable solution of atomic hydrogen—went. Four men—the flimsy metal shell—the hopes, determination and courage that sought to conquer the stars—all were gone. For an instant a warm, ruby glow, sprinkled with stars of incandescent metal, blossomed in space. The men did not mind. They did not know.

TALLENTYRE WATCHED Major DeWitt step through the door. DeWitt closed the door. Immediately he slumped back against it, his body drained of some stiffening thing that had held him up. But for the support of the door frame, he would have fallen.

"They won't go," DeWitt said hoarsely.

Tallentyre looked at him with wooden, unmoving face. If he moved his face, if he moved himself in the slightest, he felt, he would shatter to dust, like a scratched Prince Rupert's Drop. Gray, bloodshot eyes in his lean, high-boned face watched his superior motionlessly. The leathery skin of his face did not move.

"They won't go." DeWitt looked up at him, his blotched face working. Tallentyre noticed it was hideous. The unshielded sunlight of space here on Luna tanned human skin black in irregular spots. The untanned spots on DeWitt's face were white as paper, and they wiggled.

Tallentyre sighed sharply, and moved. His gray eyes were cold as fractured steel as he watched DeWitt.

"They won't go—and I won't send them!" DeWitt straightened against the door frame and glared at Tallentyre, daring him to challenge the statement. "I can't—I won't let them!" His voice rose to a hoarse, grating scream.

Major John Tallentyre faced him stonily. Outside lay the rock-and-pumice paved Luna Spaceport, black and silver under shifting sunlight and shadow. Above, the star-spattered jet of the Eternal Night. The red eye of Mars was low in the east. Tallentyre looked at it for a moment, quietly and thoughtfully. He was cold and icy as the spaceways out there. He, too, was burned to the patchy blackness of space-sun exposure. His gray eyes were startlingly light in that sun-scorched face.

"Keep your voice down, DeWitt. Those mutineers will hear you. You won't build up their morale by shouting that yours is shot. Straighten up."

DeWitt shook his head groggily. Tallentyre was his junior here. For a moment, the slap of Tallentyre's words shot an anger into him that half-roused him, as had been intended. But it faded.

"I," he grated, "don't give a damn. I *want* them to hear me. I won't send—I won't *let*—any more human beings go into *that.*" His arm gestured weakly toward the starred blackness beyond, his face working. "Fifty-One's gone. You just saw it blow. Those—mutineers—just saw it blow. The men in Fifty-One though—they didn't see it.

"Sixty ships, Tallentyre. Sixty of 'em—and two hundred and forty-two men started from Earth. Fifty-six ships, and two hundred and twenty-two men reached Luna Port. Eighteen

men lost on that little hop. Four ships blew their tubes—and that bloody six-man experiment first of all.

"But fifty-six ships landed, and we warped 'em off to Mars. And how many of those fifty-six got through?" His grating scream roared in the cubbyhole office and pounded through its flimsy metal door. Tallentyre's eyes moved toward the door.

DeWitt's roar dropped to a whisper as the man leaned abruptly forward, close to Tallentyre's moveless, sun-blackened face. "*Four.* Four got to Mars, my friend. The rest were pretty, red firecrackers in space."

He straightened slowly from the table, hunching his baggy, greasy uniform back over his shoulders. "I'm in command of this altar of human sacrifices they call Luna Port. And there aren't going to *be* any more sacrifices!"

Tallentyre's eyes stared into his steadily. "You knew men were going to die when you swore to take this duty, DeWitt," Tallentyre said steadily. "And you swore to uphold your trust. Keep your voice down, please. We'll reason with those mutineers."

DeWitt shook his head. His eyes were blazing now with a new determination; the gray-and-black mottling of his face had given way to red-and-black, as willess despair gave way to a different fanticism. "No!" he roared. "We'll send 'em—but we'll send 'em back to Earth, where men belong. Duty? Duty hell! I'm not, and will not be, High Priest of human sacrifice. *Those ships don't go.*

"And the spineless slugs back on Earth that tell 'em to do things that can't be done can come and try it if they want. I'm going to tell those men right now——"

DeWitt swung round and started toward the thin metal door with fanatic stretch of stride. Tallentyre leaped to his feet and gripped DeWitt's arm.

"Wait," said Tallentyre.

"Wait for what?" DeWitt sneered, and threw back his head to laugh harshly.

For an instant Tallentyre watched him. Then his fist moved in an invisible blur. DeWitt slumped easily, tiredly, to the floor under Luna's light pull.

Tallentyre stood for an instant above his fallen superior, the same wooden, moveless set to his lean, leathery face. Then abruptly he trembled, and fell awkwardly beside the fallen man to listen for an instant to his strongly beating heart.

Shuddering, he rose to his feet and looked desperately about the room. A relaxation, from without and within, flooded over him. His eyelids fluttered; he had to bite his lip to keep it from twitching. He slumped back into the desk chair and let his arms hang limply down beside him, staring at the fallen man.

Finally he spoke, very softly, to himself. His eyes were fixed out beyond the double-glass window of the tiny office. Beyond, where the space-black-and-silver of the spaceport blended with the black of space and the silver dust of stars. Mars, a ruby on jet velvet, lay over the horizon—the cruel, jagged horizon of Luna. "Thanks, DeWitt. You—you made me hold together.

"Altar of human sacrifice——? So was Nevada Port once. But they reached the Moon. Before that—for centuries before that—the air was the Altar of Sacrifice. But those men that died in the air weren't seeking air. They sought the stars beyond. They didn't die on the way to the Moon. They died on the way to the stars. They aren't dying now to reach Mars; again they're seeking the stars beyond. Someone's always had to——"

He looked up abruptly. The door on the other side of the office creaked softly. The frightened young face of Noel Crispin, the blond girl who kept the office files, looked in. Her eyes changed as she looked at Tallentyre and then at DeWitt.

"Take care of Major DeWitt," ordered Tallentyre of the moveless face. He slipped something from the desk drawer into his pocket and rose. "I've got to persuade the boys in the vestibule." He crossed the office in three long strides. His

steadiness was back entire when he turned the knob; he stepped into the outer room with an air, almost, of insouciance.

Four men dressed in the rubberized canvas of spacehands stood together in the middle of the vestibule floor. No doubt they had heard most, if not all, of what had passed in the office. Tallentyre looked at them. Two were huge and burly, tough, hard-shelled men who'd try anything once. Two were of a different breed; two who would do anything, at any risk, for some things, things in which they believed. The biggest, the toughest, wore a golden comet. The skipper.

He wasn't afraid now. He'd simply determined the odds were bad, and he wasn't having any. The other burly figure looked up to him; what the skipper said was right with him.

The two leaner, wiry men were white-faced. Nerve-shock release was their trouble. Like plane-pilots who'd lived through a crash, they were afraid of their fire-ships. The psychology of the things preyed on them. Nobody had ever been injured in a rocket accident. Nobody, ever. They landed sound—or simply weren't.

They'd landed. They couldn't, now, face the thing again. But, like the plane-pilot who'd survived a crash, once started again they'd be all right.

"In six minutes," said Tallentyre, "Sixty-One takes off to Mars."

"We're not going," said the skipper. "We told DeWitt that."

"You volunteered," reminded Tallentyre.

"We didn't know what we were tackling. Only ten ships had tried then, and two had gotten through. Now we do know. The trip from Earth to this hole—not three hundred thousand miles—was enough. It wasn't carelessness that snapped those other ships. We know. It was rotten tubes and rotten fuel. I drove a nitro-wagon in the oil country and felt safe. But not on this buggy. Nitro's baby's milk to this stuff. Atomic hydrogen!

"Hu-uh. We don't go." He looked at Tallentyre coldly. He meant what he said, and meant to stick with it.

"I suppose there's no use," said Tallentyre woodenly, "to say anything about guts and keeping a promise and how much you men mean to this thing. If you don't go, you know, others won't."

"Guff," grunted the skipper. "It isn't any use."

"I call this mutiny," Tallentyre informed him.

"Call it whatever you damn well like," growled the skipper. He looked down at the slighter figure of the Spaceport official challengingly. "We don't blast. And there's no sense chucking your rank around, either. There's four of us. And just what in hell do you call it when you klunk out your chief, eh?"

Tallentyre's right hand rested easily in the pocket of his tunic. The cold, gray eyes watched the big spaceman steadily. "You *think* you *could* get away with violence?"

The big man took a step forward with a hamlike fist clenched before him. "Think, brother? Hu-uh. I *know* I can," he said softly. "You tried it yourself inside there." Without turning his head, he spoke to the men behind him. "Come on, boys. Grab this guy. And one of you tail for the ship and that gun."

Without relaxing his moveless, wooden face, Tallentyre drew his hand from his tunic pocket. Space volunteers have to have a queer, reckless courage. With a bull roar, the giant captain dove forward with outstretched hands, his face twisted with sudden hate.

Tallentyre shot him between the eyes. The big body fell with exaggerated slowness under Lunar pull.

The roar of the heavy weapon drowned the sudden, soft cries of the other three. Tallentyre eyed them coldly, his face unchanged. The other burly man looked confused and bewildered, his eyes fixed muddledly on the fallen leader. He looked around toward the lean, white-faced youth with red hair and startling blue eyes. The other spacehand was looking at him, too, for encouragement and decision. He swallowed raggedly.

A new, terrific tension had built up. It reduplicated, some-

how, the tension that had made bearable that trip from Earth. The redhead shrugged, and a wry smile twisted his lips. "I guess I'll go, sir."

Tallentyre's wooden face relaxed. "Good. She's your ship then. You're the skipper. Your name? Joe? All right, you go in five minutes. This man was your rocket expert, I think? You won't need him, or a replacement. You have a navigator, and a couple of hands. Go to it."

Five minutes later, Tallentyre watched Joe seat himself in the pressure chair in Number Sixty-One's central cabin. He waved once, with a white-faced grin that made it seem he liked, but feared this command of his. Then the metal shutters came up over the rocketship's tough windows. A smooth, metal shape screamed soundless fire into the vacuum that wrapped Luna. The rushing, ruddy gas-streams scoured the pumice of the spaceport field. Number Sixty-One shot out toward Mars.

Tallentyre sat motionless in his office, his face somehow disconnected from his mind, betraying no hint of what went on behind it. Number Sixty-One. It might get there. Four had, already.

But if it didn't——? None of the great of rocketry had gotten where they had hoped to land. That other Joe, that great Joseph—Joseph Moessner. He'd sought the rocket fuel that would take him above the stratosphere. He'd recognized the inadequacy of hydrogen-oxygen. It was too heavy. The hydrogen was light enough as fuel. But for every 2 pounds of hydrogen, 16 pounds of oxygen had to be used. If only hydrogen would burn alone——

It would; Moessner had known that, and he'd done it. Hydrogen gas is H_2—two atoms combined. Monatomic hydrogen—atomic hydrogen, so-called—would burn with itself to produce diatomic hydrogen gas, and enormous heat.

Old Moessner had been right, and he'd seen the way; stabilize the monatomic form in some solvent. He'd even found the solvent.

But he never found the top of the stratosphere. For the solvent didn't stabilize the frightful stuff sufficiently. He and his two assistants—when they'd made nearly twenty pounds of the saturated fuel—became particles almost as fine as hydrogen atoms themselves.

No rocket man had ever reached the goal he sought, himself. But others took hold where Moessner so decisively left off. Less disastrous experiments showed that the combustible, oil-like solvent Moessner had used could be modified just a trifle, and made more stable. The saturated stuff generated power eleven times greater, weight for weight, than did the oxy-hydrogen fuel. They had *moessernol.* The rest was trial and error—and death.

The first passenger-carrying rocketship to pass the stratosphere exploded fifty miles above Earth's surface. The trouble, investigation showed, was in the metal of the tubes. In 1961 Moessner's younger brother set out for the Moon. He didn't reach his goal, but astronomers saw the red flash of his explosion a scant 100 miles from the Lunar peaks. None of the great of rocketry ever quite got there.

Others, in better craft, survived later landings. At first they didn't come back, though. Then the World League, having settled decisively the question of international peace and trade, took interest in rocketry.

Money, now, and Moon-trips became regular and generally successful. The new Rocket Service prepared to accept the challenge that must be answered—Mars. The Moon, with one-sixth Earth's surface gravity, and with less than 1/80th Earth's mass, was obviously the stepping stone and refueling station for Mars.

In 1996, Luna Spaceport was constructed. In 1997, Major DeWitt was placed in charge—and Tallentyre had been second then.

Twenty-eight ships that year. All that were left of the thirty that set out from Earth to Moon. Two landed on Mars. Horror crept down the tubes of the telescopes that watched

from the airless Moon. Red firecrackers in space, two—three—five had gone. Then one landed. Then another! Then—but it missed. The rockets blasted in a long, circling trail as the radio signals faded away. The control mechanism was gone. Frantic voices that became thin and died.

Firecrackers and dancing mice with long red tails. And no sense of direction.

1998 now. There were to be thirty-five ships this year. Two ships had landed of the first thirty. DeWitt had stood that, silent and moody as ship after ship flashed bright red and vanished. Or danced its brief, whirling waltz of death. There were fewer dancers now; in that year they'd done a lot with control mechanism. In the last twelve ships, there'd been no wanderers. But they cracked for some reason no man could say. Tubes or fuel? Only the wreckage might have told, and that——

That was shining droplets spattered through space.

The rebellion this day had finished DeWitt. It had near finished Tallentyre; only DeWitt's failure had forced him to defense. Tallentyre took over.

He made entries on the log as the dwindling ruby of Number Sixty-One vanished outward in space.

"What a cinch to run that Luna Port!"

Five days out in space, Mars bound, the crew of Number Fifty-Nine was exercising the age-old privilege of able workmen to belittle superior officers.

"DeWitt! Tallentyre!" growled the engineer. "Who are they but a couple of straw-stuffed uniforms in a soft job they got by a hefty pull? They sit back there with their feet on desks, while we're gunnin' out here, out where the danger and the work is." He spat into the waste container.

"Oh, I don't know," temporized a spacehand with an ambition to be an executive. "They've probably got worries of their own."

"Worries of their own?" echoed the engineer. "On that

button-pusher's work? Say, if either of them ever worried a day of his life, I hope this ship blows apart right no——"

Number Fifty-Nine was rose-red flame and sparklets of incandescent metal in that instant.

Number Fifty-Nine was one of Tallentyre's worries.

Consciousness returned slowly to Major DeWitt after Tallentyre's blow. He found himself dragged into the record room, and Noel Crispin ministering to him, as Tallentyre had ordered. He sat up, pondered blackly for several minutes, then went into the office. Without addressing his colleague, he sat before the radio, tuned in Earth, and told the secretary of the Rocket Service Board that he was resigning, to take effect immediately. After some time there came back a tentative acceptance, with the additional information that a ship would arrive to carry him away. In the same message, Tallentyre was ordered to take command at Luna Port.

DeWitt went to his quarters and locked himself in.

Tallentyre called a pair of men from the machine shop, consigned the body of the dead rocket-skipper to them, with directions that it go back to Earth when the ship arrived for DeWitt. Returning to the administration office, he sat down before the screen that recorded telescope views. After some correction of angles and focus, he picked up a clear rectangle of black, starry sky. In the center hung a cartridge-shaped hull—the last ship to leave the port.

Small in the sky beyond, a lesser capsule of metal was visible.

"A ship heading back?" muttered Tallentyre to himself. "More mutiny?"

Wearily he decided to deal with the case as it matured. His present attention must be concentrated on the craft so recently launched.

Leaning back in his chair, he fumbled the radio into operation. "Hello, hello," he said. "Ship ahoy, Sixty-One!"

"Hello, sir," came back a voice he knew—Joe, whom he had appointed captain.

"What goes on, Joe?"

"All well, sir. I'll drop you a picture postcard from Mars."

"See if there are gondolas on the canals."

Laughter from the radio—healthy laughter. "This isn't as bad as I thought it'd be, sir." Then, in sudden alarm: "Hey! Something's going bad! Looks like——"

The view on the screen suddenly flashed into white fire, blinding the observer. At the same instant something roared in the radio, then broke off. Silence, while Tallentyre clasped his hands to his tortured eyes. The flare ebbed from them, and his vision returned. The screen showed only sky and stars. The ship was gone.

"Boom!" said Noel Crispin behind him. "Just like the Fourth of July." Her voice grew harsh, mocking. "Are you quite satisfied, Major Tallentyre?"

He turned around and got to his feet. For months he and the girl had been "Nollie" and "Talley" to each other. But that had changed now. Her set face matched the fierce formality of her greeting.

"Do you feel that you've served your gods, whatever they are?" she demanded. "Will that last burnt offering be sweet in their nostrils?"

Tallentyre gazed at her, dumfounded. "What's all this?" he asked.

She laughed, bitterly and humorlessly. "I suppose that you couldn't help knocking Major DeWitt down—in fact, it brought him to his senses and showed him that he must clear out. As for shooting that captain, I saw through the open door all that led up to it. He had threatened you, and shooting's a clean death, anyway. He can sleep in a grave, back home on Earth. But those other three fellows!"

She lashed Tallentyre with her contemptuous gaze. He cleared his throat uncomfortably. On a desk at hand lay a pack

of well-thumbed playing cards. He scowled at them as though they were a new and perplexing mechanism. Automatically he went to the desk, seated himself at it, and picked up the cards. Still automatically, he began to lay them out for a game of patience.

"Is all this death necessary?" asked Noel Crispin, her voice trembling as if with passionate hatred of him. "Isn't Earth big enough for humanity? Isn't it?"

Tallentyre shook his head without looking up from the cards. "No," he replied, "it isn't. Earth never was big enough for humanity, not since the first of our ancestors lifted his eyes to heaven. You understood that once, Nollie."

"Don't call me pet names, if you please, Major Tallentyre."

"If you didn't understand," he went on, "why did you volunteer for this service?"

"Because I loved you, that's why."

Tallentyre seemed ready to fall backward, chair and all. His lips moved soundlessly, his face grew pale. "But I—I never dreamed——"

"Wait a moment. Please don't misunderstand me. I don't love you any more, and that's why I can talk about it as if it had happened to somebody else. But once—oh, I worshipped you as a hero. I thought you were brilliant, brave. I thought you were handsome, in that neat, tight uniform. I signed up so as to be near you. But now!"

Tallentyre stared at the cards in his hand. "I may as well remind you," he said, "that every man in every ship is a volunteer. Nobody is obliged to go."

"You got the answer to that from the captain in the vestibule, just before you shot him. Men don't realize what they're in for when they offer to make the trip. How many do you think would volunteer a second time?" Again she laughed. "If there ever is a second time for any of them, if a single man survives!" She leveled a finger at him, as though it were the muzzle of a gun. "If you're so full of fervor for this murderous business, why don't you volunteer to go to Mars yourself?"

"I've done so, half a dozen times." The statement surprised Noel, and she let him continue. "The Board says that I'm needed here, in an administrative position. But when I leave here, it won't be for home." He glanced at the window, whence Mars was discernible. "My home will be out there."

She shot him one final glare of almost white heat, whirled around and fled from the room. Tallentyre resumed his game of patience. After a few moments, a slight, stooped figure came through the door. It was Ernie, a white-haired old mechanic.

"Something wrong with the radio?" he inquired gently. "Seems that way. Let me have a look. I thought I heard it blow out."

"It was tuned in on a ship that exploded," Tallentyre informed him.

The slender old man shook his head sadly. "Too bad. Too bad." He poked into the radio mechanism. "Oh, this isn't serious. I'll have everything fixed in a jiffy."

"Everything?" echoed Tallentyre.

Spacehand O'Hara, who should have been watching the jet-gauges of No. 42, scribbled final words on the scrap of grubby paper he held on his knee. Then he surveyed his creation:

Lost beyond power to follow or seek,
Slain for their gallant defi—
Their spirits were strong but their pinions were weak,
The birds that were lost in the sky.

Why should the eyes of a man turn aloft?
The voices of warning chant loudly and oft,
The fireside is cozy, the armchair is soft,
Yet danger spells dare to the bold.
To search after doom as a knight for the Grail,
With death as a crew-mate, abhorrent and pale,
To perish as small, glowing sparks on the trail—
Wee stars in the black, empty cold——

Out of dead darkness and into clear light,
Marking a pathway on high,
See how they soar on a happier flight,
The birds that were lost in the sky.

O'Hara put his pencil to the second line and substituted "steadfast" for "gallant."

"It tells something," he assured himself. "Perhaps some editor would——"

His eyes came by chance to the jet-gauge. He had barely time to cry out at what he saw, before the explosion tore him and his poem and all the ship into small, glowing sparks on the trail.

Something like twenty hours after DeWitt's resignation by radio, a short-shot rocket came from Earth, made a fairly good landing at Luna Port, and bore away the somber DeWitt, as well as the corpse of the captain. Twenty hours and a few minutes passed before a second craft dropped down on the field, aided by fall-breaking jets of gas directed against its bottom. From it emerged two sturdy men in drab, who came at once to the office.

"Major Tallentyre?" said the oldest of the pair, a tallish man whose harsh eyes were not happy with what he was about to do. "I'm Inspector Baynes and this is Constable Dunlap. We've got a warrant for you."

"Warrant?" Tallentyre rose from his chair. "What kind of a warrant?"

The harsh-eyed Baynes had opened his tunic and was drawing out a paper. "We're from the World League Police. The warrant's charging you with the murder of"—he broke off to read—"of Captain Sturgis Kiser, whom you killed on the——"

"But I had to," protested Tallentyre. "He was mutinous and threatening. I acted according to my duty, and in self-defense." He turned toward the door of the record room. "Miss Crispin!"

Noel appeared. Her level eyes regarded the two officers as though she had been expecting them.

"You saw the shooting," said Tallentyre. "Tell these men what happened."

She still kept her eyes upon Baynes and Dunlap, and she spoke quietly, without expression, "Major Tallentyre shot and killed him."

"He's admitted that," said Baynes. "What were the circumstances?"

Noel Crispin shook her blond head.

"Nollie!" cried Tallentyre. "You aren't telling the whole truth. You saw him defy and threaten me." He broke off, for at last she looked at him, in hard and merciless triumph.

Constable Dunlap took a step forward, as though to lay hands on Tallentyre. But the port commander faced him so fiercely as to freeze him to the metal floor.

"Hold on," snapped Tallentyre. "You haven't authority, here on the Moon. I'll resist arrest."

"Right, Major!" piped a clear old voice from the direction of the hall. White-haired Ernie, pausing on some errand, had stepped into the office. Both policemen stared truculently at him.

"Who's this?" grumbled Inspector Baynes to Noel.

"He's Ernie. Rocket mechanic, second class. What's your last name, Ernie?"

"Moessner," said the old fellow. "Major Tallentyre, stand your ground. You can't let them take you—not when you're needed here so badly."

Noel was looking at Ernie with widened eyes. "You're—you say your name's Moessner?"

"That's right."

Tallentyre and the officers were also watching the aged mechanic. "Hm-m-m," said Baynes, "that's the name of the guy who invented *moessnerol.*"

"He was my father."

The silence that fell was as effective as though it had come

at the high point of a stage drama. Ernie Moessner, who had brought about that silence, broke it again.

"I'm the last Moessner, folks. I'm getting old—so old that I was supposed to retire—but I hope I can die with my boots on, like the rest of my family."

His old eyes met Noel's, and they glowed as palely as the heart of a rocket-blast. He laughed shortly.

"You're breaking down under the bloodshed, aren't you, lady? How'd you feel if these men who kept dying were your own flesh and blood? Answer me that."

Her lips trembled open. "I never knew——"

"But I did!" cried the mechanic, tossing back the white locks from his burning eyes. "I know how they died, and why. Listen!"

Everyone was listening.

"I'm seventy-six years old. My first memory was when my dad held me up on his shoulder, so that I could see a parade. The air was all snowy with paper confetti, and sitting on the folded-back top of the Mayor's car was a tall young fellow without a hat. That was Charles Lindbergh, in 1927, and my dad said, 'This is only the beginning, son.'

"You all know how he studied atomic hydrogen for a fuel, and how he was killed by it when he perfected it. His kid brother, my uncle, died flying the first rocket to the Moon. I was in the second, the successful flight—though why I was spared when better men were taken, I don't know."

Baynes and Dunlap were gazing, rapt and abashed. Noel again attempted to speak. "But Ernie, others are dying and——"

"I'm coming to that. Remember when Major Tallentyre here killed this mutinous captain, and made over the command to a chap named Joe? Like me, he got along without folks worrying about his last name. Well, it was the same as mine. Moessner."

"Your son!" cried Noel.

"My son. My only son. He almost backed out, I guess. But

he went, and I'm glad he went. The old prophet was wrong—a living dog isn't better than a dead lion. I'm glad, too, that I sneaked out of retirement to do plain greasy labor here. And one thing more; everything else can crack, but the rockets will keep going to Mars if Major Tallentyre and I are the only ones to shove them along!"

Noel spun around. "Talley," she began, "I want to say something that I didn't think I——"

But Tallentyre was gone.

In the midst of the old man's speech he had backed out into the vestibule and turned down the hallway to an airlock. There hung space-armor, into which he fairly plunged, making its metal-mounted fabric airtight with a single tug of the seal-zipper. On went metal-shod sandals, the heavy girdle that supported oxygen tank and breathing apparatus, and the helmet, a transparent globe clouded against the pitiless sunrays of space.

Up the hall rose a clamor of voices, a fall of excited feet. Tallentyre was in the airlock, through it, clanging across the metal face of the landing field. He meant to flee, but only for a while. Perhaps the officers would follow. Then he could slip back into the unguarded port building, organize his defense. He would make the Rocket Service Board listen to him over the radio, exonerate him. Meanwhile, which way lay sanctuary?

Deeper and deeper into the blackness walked Tallentyre, half groping, half trusting to his memories of many journeys along the trail to the crag.

Funny to feel so heavy on the Moon, where gravity is only one-sixth that of Earth. Surely it wasn't because of Noel—he, Tallentyre, had never thought of her as a lover until she had admitted her own secret. Now she had turned into an enemy, one who would keep silent when a single truthful word would clear him of the murder charge. Better put her out of mind.

Lights danced in the gloom behind him—those who hunted him. He made some degree of speed, gained the foot of the rock. Three thousand feet upward it soared, but he, even in

armor, would weigh less than forty pounds against Moon's feathery pull. Up the hewn trail he scrambled, scarcely pausing for breath until he gained the topmost shelf. There he felt safe in turning on his head-lamp. Far below he saw the landing field, its lights undiluted and unrefracted. It was a gold coin on tarry blackness. He turned away and entered the observatory building.

His glow-lamp revealed the inside of the dome—a metal-lined compartment, pierced above with a starry slit into which sloped the tube of the telescope like a gun at an embrasure. At its lower end the sensitized screen—even on the Moon, this new device had replaced the old reflection mirror—displayed a segment of the heavens. A blob of light showed in the center. Mars, of course. Tallentyre switched off his lamp again, in order to see more clearly.

The image was not of Mars. That egg-shape could be but one thing: a spaceship. To judge by the direction of the rocket-blasts, it was heading Moonward. The same craft, Tallentyre made no doubt, that he had observed earlier as doubled about and returning along its track. Now it was very close indeed. He judged that it would make port within an hour—within minutes, perhaps——

A new glow was creeping into the observatory.

Spinning on his metal-shod heel, Tallentyre stared. A human silhouette paused on the threshold, a figure made bulky and mysterious by space-overall and helmet.

This meant capture. The newcomer bore a gun in a holster at one side, and he, Tallentyre, was unarmed. But the gauntleted right hand did not reach for the weapon. Instead it beckoned to Tallentyre, then pointed outward and downward.

"Go back to the port," said the gesture.

Tallentyre lifted his own arms in token of surrender, but his heart was far from concurring. He walked across the floor, made to push past the other and step outside. Then he spun and sprang. His two hands clutched like lightning. His right

caught and imprisoned his discoverer's right wrist. His left found and captured the automatic pistol. A moment later he pressed the muzzle into the midst of the stranger's inflated jumper. Tallentyre's helmet-front grated against the glass that covered the other's face. He could see dimly—features that he recognized.

Noel Crispin.

Plainly she expected him to shoot. He grinned scornfully, and tossed the gun away. It sailed out into darkness, over the hidden ledge and into the abyss. Tallentyre gave her a little shove across the doorsill. She moved away, stooping dejectedly in her clumsy armor, and her glowing lamp showed her the direction of the down trail. Another moment, and she was lowering herself out of sight.

Alone again, Tallentyre gazed into the stars. That bright new gleam would be the incoming ship. It meant to land here. Then what? He, the port commander, could play hide-and-seek no longer. He must be on hand to receive those mutineers, to pass judgment upon them. He sighed as though in exhaustion, and said "Damn!" all to himself, in the little bubble of air that was confined about him in this immensity of void.

Minutes later he turned on his own lamp and began the descent.

As he scrambled, alone in the empty dark, he thought glumly about Noel, then about women in general. Womankind must be considered in this whole great Martian adventure. It couldn't be all a stag party. Sooner or later, the feminine angle would have to be introduced, made room for. What then? Would women help or hinder, simplify or complicate? Would women even trust themselves in those danger-ridden rocketships?

Engineer Dague of Number Forty-Five stared blankly at the stowaway whom the spacehands had just dragged from hiding. "You, Ethel!"

"Me," she replied ungrammatically, and smiled her sauciest. "I told you that I'd follow you. It's Mars or bust, right beside you, darling."

"You know that it's more than an even chance of bust."

"Then we'll bust together!"

As if in acceptance of that proposition, the ship exploded around them like a shell. Poppy fire bloomed briefly in requiem.

Nobody challenged the port commander as he strode across the landing field and let himself through the lock-panel. He paused in the hall to unship his helmet. At once he heard a hub-bub of voices. Noel Crispin's troubled soprano dominated them for an instant.

"I found him, by a hunch—he was up at the observatory. I tried to signal to him that everything was all right, and to come back, but for a moment I thought he'd kill me. Then he almost pushed me down the rock."

"He thought you were hunting him," rejoined the growl of Inspector Baynes. "I say once more, you ought to have spoken up and cleared him when he asked you to."

"Never mind scolding her, inspector," chimed in Ernie Moessner, as authoritatively as though he were the chairman of the World League instead of a simple mechanic. "She's a woman, and women have a way of changing their minds. The thing is to find Major Tallentyre before something happens to him."

"I'm here," called the man they were seeking, and walked into the office. The four searchers crowded around him, but he silenced their questions with a quick gesture.

"A ship's coming into port," he announced crisply. "From Mars. Prepare to help it to land."

They all gasped at that, and their surprised exclamations overlapped each other.

"A ship . . . From Mars . . . Coming back!" Tallentyre's pose of official sternness forsook him.

"The fools," he groaned. "Oh, the utter fools! To turn around in space and come back here—mutiny! I'll have to put them under arrest, send them to Earth, maybe kill some of them if they resist. And all the time maybe they're only showing good sense in not fighting Nature."

Noel's strong little fingers dug into his shoulder, as though she was holding together his crumbling resolve. His own big hand went up to close upon hers. Then, once more the commander, he spoke into the house microphone.

"Attention, machine shop!" he rasped. "Stand by to help approaching craft into port." To Dunlap and Baynes he said, "There's something for you to do. Arrest the crew as soon as it disembarks."

The two policemen nodded. They were good men of their trade, hardened to arresting and subduing law-breakers. Zipping tight their loosened space-overalls and once more donning their helmets, they tramped out. Moessner followed.

Tallentyre and Noel gazed through the window. The craft was settling down outside. Tallentyre could not make out its number, for it seemed to be mended and patched all over in a way he did not remember, as he checked over the ships in his mind. From many tiny nozzles in the metal face of the landing field came the strong gush of steamy vapor. High-pressure gas jets, to break the descent of the ship. It paused, danced overhead like a ball on a fountain-spray, then came gently to rest. A moment later the lock-panel opened and two space-overalled figures emerged. The officers were hurrying toward them, hands on weapons. The four men came together, formed a single party, and passed slantwise across the field, out of range of the window.

Tallentyre sighed. Noel patted his shoulder. After a moment, metal shoes rang flatly in the vestibule. The door opened. Four men came in, tugging at their helmets.

A pudgy man disclosed his face first. He was ruddy and bearded, his sun-mottled face grinning. "Major Tallentyre, sir," he boomed, "I don't know whether you remember me or

not. I'm Waddell, spacehand, first-class. Acting skipper of——"

"You're neither," interrupted Tallentyre. "I put you under arrest, Waddell. Why didn't you go on to Mars?"

Waddell looked blank. Then the grin reappeared and widened. "Because I'd been there once, sir."

Tallentyre felt himself stumble. Noel's hands helped him to a chair and to sit down. He listened, comprehending by degrees.

"Yes, sir. Number Six, that ship was. There's a colony there now, getting ready to gather up the last bunch that came through. You remember the orders—orbital speed, and land on Diemos. Photograph maps of Mars made from there. It worked perfectly. With the telephoto lenses we had regular air-maps of the planet.

"There aren't any canals, sir. But there is vegetation, lots of it. Spiny growths like cacti, and tougher'n rubber. But the pith of some of 'em makes a flour we can eat.

"Most important, they throw off oxygen. There's damn little air on Mars, but what there is is mostly oxygen. No trick at all to blow it into the ships—into the dome we set up from hull plates. And—there's oil there, Major! Fuel!

"Now with that there," Waddell's face split in a broad grin, "and a gang of men that were all hard-boiled technicians, it wasn't much of a trick to set up some of the auxiliary-power Diesels for power."

He stopped for a while, and looked at Tallentyre's seamed face. "Been a damned tough life you've had here, hasn't it? Sending men out in those firecrackers.

"Well, that's gone too." His hand dipped into his tunic pocket to come out with a nodule of blue-silvery metal. He tossed it to Tallentyre. "That's the answer. That's why our ships went through—and the others blew their tubes. We had something to work on that you birds didn't. Tubes that had been *proven*. The metal changes in the tubes, under the long, heavy firing. The alloy shifts. If it crystallizes that way—you

land. There's another modification though. If it crystallizes that other way—you blow. That other way is catalytic on the hydrogen, that's the trouble. The fuel's all right. It's the metal. If those cockeyed crystals form—they catalyze the burning. It doesn't burn then, it blows. You get a flash-back, a sort of special explosion wave that sets off the whole tank.

"We found out how to make those crystals every time, controlled. Old Six's tubes were torn out, and the new ones put in. She rode back to Luna here as smooth as an engineer's theory. Somebody had to come through. We need more men out there. Grayson's trying to set a station on Diemos. His figures look right, and he thinks he can make Callisto."

"Callisto!" Noel's hand left Tallentyre's shoulder, crept around him. Her arm hugged his body. Still sitting, he leaned against her as though to find rest.

This, he knew in his heart, was the beginning of the triumph. Men could go—men had gone—to Mars and back. The labors and the sorrows had not been vain. Hadn't Waddell brought back the secret—the secret men on Earth couldn't learn—that made fleets possible? Wasn't Grayson, there on Mars, already looking on, beyond the asteroids to Jupiter——?

The officers had taken off their helmets again. Tallentyre turned and smiled at them. "Sorry, gentlemen," he said. "It's a dry haul for you this time. Why don't you go back to Earth—take Waddell here with you to make his report to the Board—and——"

"Hey," Waddell interrupted, "nothing doing. That ship out there is O.K. right now for the trip back home—Mars, I mean. Gimme some *moessnerol* and we'll hop that hole like a frog-puddle. I'm going back there.

"And I wouldn't ride in one of those ships just out from Earth now. That's the only ship in the System I'd trust to ride anyway. Give him the metal samples, and the books and notes Grayson and Hudson fixed up. They said it's all there. I'm no metallurgist—just a spacehand, first-class."

Tallentyre shook his head. A tight little grin tucked in the corners of his mouth. "I'm ordering you to Earth, Waddell. You make that report in person for three reasons; they need to see a man that's been to Mars and back. It will give them courage again. We'll fix the tubes on the ship that takes you back. And—you'll be taking my resignation."

"But the ship!" Waddell protested. "If it doesn't go today, sir, Mars'll get away from us for nearly two years!"

Tallentyre rose from his chair. He looked smug. "Oh, the ship will start today. But I'll command. *I'm* going to Mars for a change. And perhaps——"

He broke off and looked at Noel. Her face became radiant. She whirled about as tears brimmed her eyes, but her words were a song.

"I'll start packing," she said. "This can't be a stag party forever!"

Robert Moore Williams

THE RED DEATH OF MARS

With better space ships, exploration of other worlds brings more unpredictable hazards of mystery and death.

SPARKS AVERY, on vigil beside his radio equipment, saw the three men coming. He didn't have to look twice to know that something was wrong. Rising, he opened the controls that manipulated the outer door of the lock.

From the stern of the ship came a rattle of pots and pans as Shorty Adams, the dour cook, prepared the evening meal.

Angus McIlrath, far-wandering son of Scotland, came forward from his engine room. Momentarily, as he opened the door, the muted hiss of the uranium fission engines sounded.

"What is it, lad?" McIlrath asked.

Sparks pointed to the three men. They were nearer now. Coming across the sandy square, the dust splashed around their feet and hung in an eddying cloud behind them, dust that had never known rain.

McIlrath squinted through the double glass of the port, shielding his old eyes against the thin sun glare of Mars. "I don't like their faces, lad."

Sparks did not answer. Heavy boots clumped in the lock. The outer door clanged. Air hissed softly. The inner door opened.

Martin Frome, tall and thin, came first. His blue-gray eyes rested for an instant on the radio man. He said nothing. Behind him came James Sutter, swinging his long arms like a waddling ape. And last came Vincent Orsatti, blinking weak eyes behind thick-lensed spectacles.

"Is everything all right in the ship?" Frome asked.

"Right, sir," Sparks answered.

"You kept close watch from the ports, as I directed?"

"Yes."

"You observed nothing unusual, no movement of any kind?"

"Nothing."

Frome turned to McIlrath. "Are the engines ready?"

"The engines," said McIlrath evenly, "are always ready."

"Keep them that way," said Frome flatly.

McIlrath touched his cap with two fingers. "Aye, captain."

Frome turned to the two men who had entered with him. "Sutter, prepare for immediate transmission by radio to our main base a short archæological report on the city itself."

The archæologist, already pulling off his heavy garments, clumped across the room to a table.

"Orsatti," Frome said, "you will oblige me greatly if you will tackle a report on this." He opened the knapsack that he carried, took an object from it which he laid on a table.

"Gladly, captain," Orsatti answered. "Oh. On *that?*"

There was startled inquiry in Orsatti's voice. Sparks leaned forward to look at the object Frome had laid on the table. A gleam of brilliant ruby lanced out from it. "What is it?" he asked.

"We don't know," Frome answered. "They're scattered everywhere, all over the city. In one place we found them piled three feet high against a door, like a load of coal dumped from a truck. They look like jewels, but they aren't that."

It did look like a jewel, like a ruby as big as a man's fist. It was round and its surface was a mass of facets from which reddish beams of reflected light winked.

"But, captain," Orsatti protested. "My speciality is biochemistry. I am also a metallurgist, of sorts, but this doesn't fall within either of my fields."

"Describe it as best you can," Frome said gruffly. "While I prepare a report on the fate of our first expedition to this triply-cursed city of Torms."

"You found them?" Sparks interrupted quickly.

"We located their ship from the air, before we landed."

"I know that. But the men—"

Frome's lips knifed into a straight line. "We found the men, too."

"Oh," Sparks answered. For a second he stared at the captain, his face working. Then he turned on his heel and walked over and eased his lithe body into the chair in front of the radio transmitter. McIlrath looked at him sadly, but said nothing.

Orsatti's report was finished first. He handed the single sheet to the radio man. Sparks read:

The jewellike objects which we have discovered here in Torms seem to be unique. So far as my personal knowledge goes, they have never been reported elsewhere on Mars.

We picked them up all over the city. Apparently the first expedition discovered them, for we found several in their ship, one under the commander's bunk, others near the vessel.

They appear either singly or in groups that may run as high as several hundreds. In one place we found thousands of them piled, as Captain Frome described it, "like coal in front of a basement door."

It is doubtful that they belonged to the unknown inhabitants of this city. A more likely hypothesis is that they have been brought here after the inhabitants died.

In appearance they much resemble gigantic jewels, and at first glance, they seem to have been carved into definite facets. A more careful examination, however, discloses that the facets are natural, and apparently result from the crystalline structure of these strange objects.

Another unique characteristic is their fragility. Sutter dropped one of them. It shattered into fragments so minute as to be almost invisible, and then, to add to our uncertainty about these crystals, the fragments rapidly dissolved into a thin red gas which seemed to have a tendency to flow together.

We have as yet not been able to suggest an adequate explanation for the origin of these crystals or to determine what

they really are.—Signed, VINCENT ORSATTI, biochemist with the rescue expedition to Torms.

Sparks snapped a series of switches. A transformer hummed. Radio tubes warmed. He spoke into the microphone. "Rescue ship *Kepler* calling Main Base. Rescue ship *Kepler* calling Main Base."

"Go ahead, rescue ship," the loudspeaker answered.

By the time he had finished the first message, Sutter had completed his report. Sparks started reading the archæologist's account into the microphone.

"Unquestionably this is the most important archæological discovery made since the first ship landed on Mars eleven years ago. It is not necessary for me to recount here the explorations made since that date.

"You recall the eagerness with which the first exploratory efforts were carried out, the hurried, frantic search for intelligent life on Mars. There was never any question that life had existed here. Dust had almost filled the canals, dust covered the sites, but the canals and the sites proved that a race of remarkable scientific achievement had developed on this planet. You recall how our eagerness faded into wonder as the reports of the exploring parties came in. They found cities—with sand drifting down the streets. The condition of the cities indicated that they had been abandoned in a manner which suggested that the inhabitants had slowly fled before an advancing enemy. We found tools scattered everywhere, ornaments, the strange scroll books covered with indecipherable hieroglyphics. But we never found the race that had created these things. We found their bones, dry in the sand. But we never found them. Nor did we find the enemy before which they had fled.

"Nor are there any inhabitants here in this city of Torms. But there is something here that I regard as very significant.

"Here everything is in perfect order. The books are neatly stacked in the shelves, the contents of the few houses we entered are in place, and the tools and engines of the race that built

this city are packed in the equivalent of cosmoline, a heavy grease that protects them from rusting.

"Everything here is in perfect order—as if the owners planned to return at some future day.

"A secret is hidden here, a secret that may account for the disappearance of the race that once inhabited Mars. This city is newer than any of the others we have found. It was abandoned last. The clue to the fate of the life on this planet is here.

"Upon the desirability of determining the fate of this people, of solving the vast mystery that shrouds this planet, I need not comment.

"I therefore recommend that a most careful investigation be made here.

"Signed—JAMES SUTTER."

Sparks took a deep breath. "End of the second report," he said.

"It sounds interesting," the speaker said. "But have you got any dope on what happened to the first expedition?"

"It will be along in a minute," Sparks answered.

"All right, don't snap my head off," the speaker grated. The operator's voice trailed into suddenly embarrassed silence. "Avery, I'm sorry. I—just forgot."

"Skip it," the radio man said gruffly. "I'm not asking for any sympathy." He looked up. Captain Frome, his face looking as if it had been chiseled from granite, stood beside him.

"Transmit this," Frome said. He laid his hand on the radio operator's shoulder, his fingers dug into the flesh.

Sparks didn't feel them. He read the message. "O.K.," he said, "that's what I wanted to know."

Frome's voice was suspiciously husky. "Lad, I'm sorry."

"You can skip that, too," Sparks answered. Frome walked away. The operator's voice droned into the microphone, repeating the message Frome had given him.

"October 16, 2347.—When the radio signals of the first expedition to Torms ceased coming through, we were sent to

ascertain if the expedition was in trouble. This is a report of what we found.

"We sighted the ship from the air. It was resting in one of the squares peculiar to Martian cities. We landed as near to it as we could, in a nearby square, and immediately Orsatti, Sutter and myself walked to the ship, leaving Avery, our radio operator, McIlrath, our engineer, and Adams, our cook, to guard our own vessel.

"I regret to inform you that we found the three members of the first expedition dead.

"We were unable to determine the cause of death. There were no wounds on their bodies, but the expression on their faces indicated that they had died in agony. Commander Richard Avery was in his bunk. His legs and arms, stiffened in death, were drawn up in a position that hinted he had been aroused from slumber and had tried to defend himself. However this is merely an impression. No evidence substantiates it. Samuel Funk, the archæologist, was at the radio transmitter. The impression I received was that he died trying to call for help. The radio set was dead because of power failure, which is utterly incredible, for the power that fed the set was drawn directly from the uranium fission driving engines, which had ceased to operate. In my personal experience this is the first and only time an uranium fission engine has failed to function. I can suggest no reason for this failure. However the engines are dead. We tested them.

"John Orms, language expert who was attempting to decipher the Martian language, was found at some distance from the ship. His tracks in the sand indicated he had fled from the vessel. The same agony was on his face.

"In an effort to determine if the ship had been attacked, we examined the sand near it. No footprints, other than those made by the three men, were found.

"We buried them in the sand of the square in which their ship had landed.

"We will make a complete investigation. It is essential that we know not only what caused their deaths, but what stopped the engines of their ship. Also we will attempt to solve the

mystery of this city, as indicated by James Sutter, our archæologist. Signed—MARTIN FROME, captain of the rescue ship *Kepler.*"

Sparks' steady voice faltered. He swallowed. Then he spoke again. "This is the end of the transmission at this time." He snapped off the transmitter.

There was silence in the ship. Sparks looked at the radio equipment, saying nothing. He raised his head when a voice spoke.

"Ye're a haard man, Martin Frome." It was Angus McIlrath. In moments of stress the burr of his far-distant homeland appeared in his voice.

"You need not remind me of that fact, Angus," Frome answered.

"Skip it, Angus," said Sparks bluntly.

"But 'twas yer own faither, lad, that they buried there. The least they could have done was to tell ye as soon as they returned—what they had found—instead of making ye wait and learn it from the messages." He turned to Frome. "I say it again. Ye're a haard man."

"This is a hard planet, Angus, and it is a hard trail we travel getting here. It is no place for weakness of any kind—"

"Aye, but—"

"I said to forget it, Angus," Sparks interrupted. "My father was a hard man, too. If he had not been, he would not have been what he was—the first human to set foot on Mars. I know very well what he was called. 'Old find-a-way-or-make-one Avery.' 'Old damn the risk; we're going through.' Whenever anything went wrong—and everything must have gone wrong on that first trip—he had a saying, 'For every evil, nature provides a cure. But she doesn't hand you that cure on a silver platter. You've got to find it yourself, or die.' He hated any show of sentiment, any weakness of any kind. Captain Frome told me my father was dead in exactly the way he would have

wished the news to reach me. As to his death, he died as he would have wished, fighting the unknown. He is buried where he would have wished to be—in the sand of Mars."

Silence followed the radio operator's outburst, the awkward silence of men who want to show their sympathy and can't find the words.

"I was on that first trip with him," said McIlrath. "I learned to know him. Ye're his own true son."

"Sorry," Sparks answered. "I didn't mean to blow off steam that way. He wouldn't have liked it. But he was always sort of a god to me, and"—his lips tightened—"something killed him."

The central door opened. The cook stood there. "Come and get it," he said, "or I'll throw it away."

"Come on," said Sparks bitterly. "Let's go eat."

When they left the room the jewel was lying on the table where Orsatti had been examining it.

When they returned it was gone.

They searched the ship for it. They didn't find it. They didn't even find a tiny opening in the inner hull down near the floor, a hole that looked as if a rivet might have dropped out of it. The hole was no larger than a lead pencil, which was probably why they missed it. There was another tiny opening in the outer shell of the ship.

The jewel was gone.

"Gentlemen," said Captain Frome, "tonight we will take turns standing guard."

But nothing happened that night. No intruder tried to gain entrance to the ship. The wind of Mars, blowing the dry dust of the red planet, whimpered softly around the vessel. There was no other sound.

But what happened the next day made them forget, temporarily at least, all about the jewel that had disappeared so mysteriously.

Early in the morning Sutter and Orsatti went out to continue their investigation of the city. Frome remained in the ship, writing up a complete report. McIlrath, under orders from Frome, had gone to the vessel of the first expedition, to examine the engines. He had returned dourly shaking his head. The engines were dead. He had reported to Frome that he was unable to determine the cause of their failure, and muttering had gone back to his own engine room.

Sparks, on lookout duty at the port, saw the man coming. It was Sutter. He was running.

"We've found them!" Sutter gasped as he came through the inner door of the lock. "The inhabitants of Mars. In a cavern under the city. You remember that door where all the jewels were piled? We shoveled them out of the way and opened it. The Martians are down below. Frozen sleep," he gasped in explanation.

"Then they're alive?" Frome snapped.

"No. Not yet. But they can be awakened, I think. Orsatti says they can and he ought to know. He's down there now." The archæologist was so excited he could not speak coherently.

Sparks knew what this find meant to Sutter. It meant a lot to all of them. One of the big reasons why men had been so anxious to blaze a trail across space to Mars had been to meet the inhabitants of the planet. Photographs taken in 1939 had showed conclusively that the canals of Mars were artificial. Therefore there was life on the sister world across the void.

But when they reached the planet, they hadn't found the men of Mars. Instead they had found desolation and dust and sand. And death. Deserted cities.

If Sutter was right, this was the big moment in the history of the exploration of Mars. Even the arrival of the first spaceship from Earth was not as important as this discovery. His heart leaped at the thought. The long lost inhabitants of Mars had been found!

Frome began jerking on heavy clothing. "Get into your

clothes, lad," he barked, "and call Angus. He came here with the first ship and he deserves to be present when we awaken one of these Martians."

Sparks, diving toward the engine room, realized that Frome had given no reason for taking him along. He had said that Angus deserved to be present. The old engineer did. He had suffered all the privations of the pioneer explorers of this planet. He had earned a chance to be present at the historic moment when one of the men of Mars was awakened.

But Sparks knew why Frome was taking him. He hadn't earned his chance. Someone else, who couldn't be present, had earned it for him.

He was only a youth, barely past twenty. Only his superb knowledge of radio equipment had got him a place with the Martian explorers. His father had not opposed his coming. Nor had he helped his son secure the appointment. He had said, "The fact that I am commander of the men exploring Mars, will make no difference so far as you are concerned. You will suffer every hardship that anyone else suffers, you will take every risk. You will eat the same food, sleep in the same hard bunks, drink the same synthesized water, and stand strictly on your own feet. You will ask no favors and you will obey orders implicitly, no matter what they are."

Richard Avery had been a hard man. But he had been a man.

Only Shorty Adams was left to guard the ship. Frome gave him strict orders to be on the lookout.

Sutter led them at a dogtrot across the silent, deserted city to a low building that had only one door. Ruby crystals were scattered all around the door where he and Orsatti had shoved them out of the way. Sutter dived into the dark opening and as the others followed, Sparks saw how heavy that door was. It was at least a foot thick and the other surface was heavily pitted by rust.

Orsatti waited for them down below. "They're here all

right," he said. "Each of these cells has a Martian in it. They're in frozen sleep, too. No doubt about it."

The chamber was not large. It had been carved out of solid rock and it had perhaps five hundred coffinlike cells in it. Each receptacle was fitted with a glass top.

"I waited for your permission to open one of these receptacles, Captain Frome," Orsatti continued. "Pending your arrival, I took the liberty of removing the seals from one of the caskets. It's ready to open. Shall I go ahead?"

Frome hesitated. He peered through the glass top, studied the creature that lay within.

"Are you certain these people are really in frozen sleep?" he asked.

"Positive of it. Feel the temperature down here. It's perfect for frozen sleep. That's why this city was in perfect order, the tools put away in grease, the houses closed and locked. These people expected to return to their city when they awakened."

"Well," said Frome slowly, "you may— What's that, Angus?"

McIlrath had stood apart from the others. He had taken a flashlight and poked carefully around the cavern, nosing down the aisles between the receptacles like a wary old hound scenting the presence of danger. Now he spoke.

"I'm thinking that these people had a reason for putting themselves into suspended animation. They didn't come down here and hide away in this gloomy hole for no cause. I don't know what their reason was, but it could have been the last desperate expedient of a race fleeing from some deadly and implacable enemy. If this is true, we had best consider well our action in awakening them."

A little stir of uneasiness ran through the group. Orsatti blinked owlishly. Sutter protested inarticulately.

"Have you seen anything that you might consider an enemy strong enough to force the Martians to resort to frozen sleep to escape it?" Frome questioned.

"I have not that."

"But perhaps their food supply gave out," Sutter protested. "The water supply has been dwindling on this planet for ages. Perhaps a protracted period of drought left them with no choice except frozen sleep or starvation. They chose suspended animation hoping that when they awakened, climatic conditions would be better. Perhaps they had alternate cycles of drought and meager rainfall. This was the way they escaped the drought."

The old Scot shook his head. "Ye may be right. Perhaps these Martians fled from drought. But I remember we came here to rescue three men. We found them dead. One of them had fled from their ship. What he fled from we do not know. But we do know that this race was also fleeing from something."

Again the little stir of uneasiness came. Was the old Scot sensing something that he could not put into words?

Sutter was an archæologist. He had spent years digging into the ruins of Mars. He would not be balked now. "This is superstitious nonsense!"

"It may be that," McIlrath answered. "I think I knew the three men who died here fairly well. There was little superstition in them. And I know very well indeed that uranium fission engines are not superstitious. But both the men and the engines are dead. You cannot account for that by superstition."

Sutter and Orsatti turned to Frome and began to plead with him to permit the opening of one of the receptacles.

Frome considered his decision. "The whole purpose of our exploration of this planet has been to discover the Martians. Having found them, if we fail to awaken them, our purpose is defeated. Therefore you may open one of the receptacles."

Sutter and Orsatti wasted no time. Frome turned to McIlrath. "I'm sorry, Angus. If you had had a definite reason, we would have waited."

"Aye, captain," McIlrath answered.

Sparks Avery watched. He had taken no part in the conversation. Now, in spite of the dry, frigid air, globules of sweat

began to form on his forehead. He brushed them away. Now and again his eyes strayed to the heavy pistol that hung at Frome's hip. Frome had opened the flap and loosened the pistol in its holster.

There was a jewel on the floor near the end of the ramp that led downward. It glittered evilly in the sunlight that was beginning to shine into the cavern.

It seemed to the radio operator that only minutes passed before Orsatti had opened the receptacle. Very gently he and Sutter lifted out its occupant.

They laid him on the floor, this man of Mars. The men from Earth clustered about him. He was not quite five feet tall, had a huge chest, and long, spindly arms. He was clad in a soft leather garment and around his waist was a metal belt from which a pouch and a short dagger hung.

"In minutes, he will awaken," Orsatti whispered.

The others were silent. Sparks caught the suppressed tension of that moment. He had been on Mars less than six months, but he had absorbed from his father the lure of the red planet, the vast mystery of it. Now the mystery would be solved. Now Mars would have a voice. Now the red deserts would give up their secrets, now the deserted cities would reveal what had happened in them.

The Martian stirred. A little finger moved, an arm twisted. His chest heaved. The soft sigh of air through long unused vocal chords echoed through the cavern.

"He's awakening," Sutter whispered. "Heavens! What will he say? What will he do? What will he think? How amazed he will be to see us, strangers from another world, bending over him!"

As they watched, the chest movement of the Martian became more regular. The panting heaves that had marked his first gasping efforts for air smoothed into an even rhythm. Spasmodic twitching fluttered his throat.

"Look!" the archæologist's tense voice rang out. "His eyes are opening."

They were brown, an agate-brown. They were filmed and out of focus.

"Easy, old fellow," Sutter whispered. "Here. I'll help you sit up." He slipped an arm under the Martian's shoulder.

The Martian glanced at Sutter, and looked away. The film was gone from his eyes. They were in focus now.

Sparks caught his breath. What he had seen was incredible.

The Martian had only glanced at Sutter. Then he looked away. His eyes went to the faces of the others. But he only glanced at them, too, glanced casually at them, as if they were of no importance.

Awakening from the sleep of ages, finding himself the captive of a race that obviously did not belong to Mars, he found them not worthy of a second glance.

What was wrong? Couldn't the Martian see yet? Was he blind?

Or, no matter how important were these giants who were bending over, was there something that was more important?

The Martian had large, pointed ears, which he could move at will. He twitched them backward, like a cat listening for a sound behind him. He absolutely ignored the Earthmen. His ears flipped forward, toward the open doorway through which the sun was shining. He listened. There was no sound. He moved his head from side to side, his ears questing for some sound in the cold dry air, his eyes alert for movement.

Sparks found himself listening, too. He heard nothing. But the Martian seemed to hear something. His ears were flipped forward, with the intentness of a cat that has heard the growl of a dangerous dog. But he was no longer listening. He was looking. He saw something. The agate-brown eyes were fixed with terrible intentness on an object near the doorway.

Fear crept over his face, a horror and a terror that was akin to madness. He jerked himself free from Sutter's arms. The archæologist tried to hold him. He wrenched himself free. His hand darted to the dagger at his belt.

It rose evilly upward—and sank in the Martian's throat!

He screeched. The screech died in a gurgle. He fell forward on his face, and a cloud of dry dust puffed from under his dead body.

In the shocked, stunned silence Sutter hoarsely gasped. "We scared him. He saw us, and committed suicide."

"No!" Sparks jerked out. "He saw us all right, but we didn't scare him. He didn't pay any attention to us. There's the thing that scared him!"

He pointed toward the doorway where the ruby jewel glinted in the sunlight. "That's what he saw. That thing. It scared him so badly that he committed suicide." He started to approach the jewel.

"Drop it!" McIlrath's voice rang out. "Don't touch that thing."

Sparks leaped away.

"The lad's right," Angus continued. "I was watching. The Martian paid us no heed. It was yon jewel that scared him."

"But that's preposterous!" Sutter protested. "That jewel is harmless. We'll open another receptacle, revive another Martian."

"We'll do nothing of the kind," Frome snapped. "Preposterous or not, this demands a full investigation. When the first Martian we find commits suicide as soon as we awaken him, I'm going to know why he did it before we awaken another one. Sutter, you and Orsatti pick up his body. We'll take it to the ship, make a complete report to our main base, and ask that a large expedition be sent here. Angus, you lead the way. Sparks, you follow him. I'll bring up the rear."

He jerked the pistol from its holster. The click as he slipped a cartridge into the chamber was loud in the silent vault. Overruling Sutter's objections, he ordered them from the vault. They obeyed him. As he walked up the incline, he picked up the jewel and swiftly thrust it into his knapsack. He closed the door of the cavern as they left.

In the minds of each of them was a single question: Why did the Martian commit suicide? Why had that jewel scared

him so badly? Was death, silent and invisible, here in this haunted city? Had the Martians fled from death?

When they reached the ship they found that death was there ahead of them. They found Shorty Adams curled up under the water cooler in his own galley.

He was dead.

Sparks found him, and called the others. Frome got there first. His examination of the body was swift, but thorough. "This happened almost as soon as we left the ship. There is no wound on his body, no sign to show the cause of death. But his face is stamped with the same agony that was on the faces of the first three."

Methodically he began to search the galley. From an open bin he pulled another jewel.

Frome's face seemed to freeze. He was still wearing the heavy gloves that are standard equipment in the open of Mars. Handling the jewel gingerly, he raised it up to the level of his eyes, squinted at it. Shaking his head, he said, "I can't tell whether it is the same one we brought into the ship last night."

"Do you think, while we were at dinner, Adams slipped into the other room and stole it?" Sutter asked.

"That is not true," said McIlrath flatly.

"How do you know it isn't? It could be true."

"I knew Adams," the old Scot said. "He was no thief."

"But how did it get out of the ship, or where was it hidden? Are you suggesting it moved of its own accord?" Sutter persisted.

"Enough," Frome interrupted decisively. "Something killed him. I am not prepared to say this jewel was responsible for his death. I'm not prepared to say it wasn't. But I am saying this: We're going to our main base immediately, where complete laboratory facilities are available, and we're going to find out what these damned things really are. Angus, prepare your engines for an immediate take-off. Sparks," he barked, "warm up your transmitter and make contact with our main base immediately. Report that we are coming in. Get moving."

Sparks was already racing toward the bow of the ship. As he slid into the seat before the transmitter, he saw, out of the corner of his eyes, the body of the dead Martian where Sutter and Orsatti had dropped it when they entered the ship. The dagger was still sticking from his throat.

The sight sent a touch of eerie chill up his spine. If he had needed anything to remind him that some incredible form of death lurked very near, the sight of the dagger protruding from the Martian provided it.

He snapped the switches, reached automatically for the microphone. When no transformer hum came he snapped the switches again. He was still working with them when Frome entered the room.

"I regret to report," he said, "that our transmitter is dead. The power seems to have failed."

Frome stopped in midstride. He would have halted like that if somebody had suddenly pulled a gun on him. "What's that?"

As Sparks repeated the words, Sutter and Orsatti entered the room.

"But the power for our radio transmitter is drawn from our main engines," Frome whispered. Then he spun on his heel, brushed past Orsatti and Sutter, and was gone.

"What's going on?" Orsatti asked bewilderedly.

"I have a hunch I know," Sparks answered. He pounded after the captain. When he reached the engine room he needed only a glance to see that his worst fear had come true.

"But the engines can't be dead," Frome was saying vehemently. "They *can't* be. It's impossible for uranium fission engines to fail."

"I know it's impossible," the old engineer replied stubbornly, "but I'm telling you it's happened anyhow."

Captain Frome faced the tense little group. "Gentlemen," he said, "I need not remind you that we are face to face with a new and unknown form of death. Night is coming. We are without power to move the ship or to operate our radio appara-

tus. There are hundreds of miles of dry, deadly deserts surrounding this city, deserts which we could not hope to cross on foot. We have food and water for two weeks. Unquestionably, when our main base cannot raise us by radio, they will send a rescue ship, but it will be a week before a rescue expedition can reach us. If we are to be numbered among the living when it arrives, the price we will pay for our lives is constant vigilance. Pistols will be issued to all of you. Keep them ready at all times."

He paused and looked at the engineer. "Angus, you and Sparks will make every effort to determine the cause of our engine failure and to correct it. Sutter, you will do me a great favor if you will take charge of the galley. Orsatti, I would like you to help me."

"Certainly. What are we to do?"

"We are going to find out what these damned things really are," Frome answered. He pointed to the two jewels. The biochemist paled.

Working on the engines, it was obvious that the old engineer was trying to conceal his fears. To all questions he returned the same answer, a perturbed shake of the head. "I dinna know, lad. It is as if the uranium has lost its power to explode."

"But it hasn't been touched. The seals are in place. If anyone had tampered with it, he would have left marks behind him."

"I know that, lad. And I am remembering that there were no marks on the bodies of the dead men, either."

"But what could have done it?"

"I dinna know, lad. But we must remember this is Mars. There are strange things here on this planet, things that no man can guess. The Martian committed suicide. That was strange. And those ruby jewels are very strange."

"But why were our engines stopped? Were we deliberately marooned here?"

"We cannot begin to guess at motivations," McIlrath replied uneasily. "This is not Earth. The creatures of this planet may have entirely different reasons for their acts than we have."

Then the first shot came. *Bang!* The second one came right behind it.

Somebody was using a gun. His first shot had missed. But he had taken dead aim to make certain the second one did not miss.

Bang! Bang! Bang! Three more shots followed closely on the heels of the second. Whoever was using the gun had missed with the second shot. Now he was emptying the weapon at a charging enemy.

"It's in the main control room," Sparks said. "Come on."

Yanking his pistol from its holster, he raced down the corridor. McIlrath came right behind him. They almost ran over Sutter as he came out of the galley, a gun in one hand and a kitchen knife in the other. The archæologist brought up the rear.

Sparks kicked open the door.

Orsatti lay on the floor. Sparks did not need to see the sick agony on his face to know Orsatti was probably dead or dying.

Frome was alive. He stood stiffly erect, his feet wide apart, taking aim with his pistol. Flame lanced from the muzzle and the sharp thunder of the shot smashed through the room.

He yanked the trigger again and the hammer clicked on an empty chamber. With a single motion of his arm he threw the weapon at the thing coming at him.

The sight paralyzed the radio operator. What he saw—was impossible! The thing that moved toward Frome was a two-foot ball of reddish gas. A globe of swirling gas, lit with a baleful red brilliance. The thing glittered with microscopic pinpoints of light. It made a sound as it moved, a high-pitched note like the whine of a distant motor generator.

There were two of the gas balls. One of them was darting toward Frome. The other was down on the floor, on Orsatti's

body, and the whine coming from it held a gloating note, like a ghoul feeding.

Everything happened in split seconds. The gas ball streaked toward Frome. A thundering explosion smashed Sparks' eardrums. He saw a pistol poked past him and he knew that McIlrath was firing over his shoulder. He jerked up his own gun and the two pistols spat a salvo.

The gas ball flinched as the bullets hit it, wavered and dodged.

"That's the medicine," Sparks shouted. "Hot lead." He fired again.

Before the third shot had left his gun, he knew the weapon was useless. The gas ball flinched as the slugs hit it, but they passed through it unimpeded. It struck Frome on the chest, clung to him like a leech. His hands jerked up to tear it away, but as it touched him his whole body seemed to be paralyzed, and his arms fell limply. A look of startled agony writhed over his face. His eyes popped open in sudden horror. He screamed and slumped to the floor.

As he fell, he saw the radio operator standing in the doorway.

"Close that door," he gasped. "Barricade yourself behind it."

Sparks did not move to obey him.

"Save yourselves, the weak words came. "Never mind us. We're done for." The voice found strength in some hidden sources and Captain Frome rasped out his final command. "That's an order. Obey it."

He was the captain. His authority was final.

"Obey it, hell!" Sparks snarled. He leaped into the room, McIlrath and Sutter right behind him.

What happened next was always afterward a blur in Sparks' mind. As a boy he had fought bumblebees in the meadows of Earth. This was something like fighting bumblebees, except that this bee was deadly. Slapping, slugging at the reddish mass of gas on Frome's chest, they tried to tear it loose. To touch it

sent jarring needles of pain up their arms. Their hand smashed through it. It swirled and re-formed.

But when the fight was over, Captain Frome was on one side of the door and a reddish mass of gas was singing angrily on the other.

And Sparks was turning back to the door. When he came out the second time, he had Orsatti's body in his arms. He had enough strength left to lay the biochemist down. Then his legs buckled under him and he collapsed.

When he recovered consciousness the old engineer was dribbling whiskey into his mouth. He tried to sit up but McIlrath pushed him back.

"Lie still, lad, until ye get your strength back."

"But those gas balls."

"Lie still and I'll tell you what we've decided about them."

"But where are they?"

"Forward in the control room whining to each other. Captain Frome thinks he has found out what they are."

"Captain Frome? How is he?"

"Weak as a kitten, but we think he'll live. He says the gas balls came from the ruby jewels, that while he and Orsatti were working with the crystals they suddenly turned to gas right before their eyes—"

"But that's impossible."

The old Scot shook his head. "Captain Frome says the gas balls and the crystals are two different forms of the same life species. He thinks they are similar to the cocoon and the butterfly that we know back on Earth. The crystal is the cocoon stage. The ball of gas is the butterfly stage. He says he thinks they live on radiant energy, and that they attack our engines and us for the same reason."

"But—" Sparks choked off his protest. Frome was a thoroughly capable physicist. And he was not given to idle statements. If he made a statement, he had a good reason to back it up. "What connection is there between our engines and us?"

"There is this connection, lad. The source of power in our engines is the radioactivity of the uranium atom. The source of the energy that keeps the human heart beating is the element potassium, which is slightly radioactive. If you remove the uranium from our engines, they won't generate power. If you remove the potassium from our bodies, our heart stops beating."

"But the uranium was not removed from our engines, and the bodies of the dead men show no marks of any kind. How was the potassium removed without leaving a mark?"

"It is not the uranium or the potassium that is removed. Captain Frome says these gas balls live on the radioactive emanations, the alpha, beta, and gamma rays, discharged by these elements, leaving them inert. Just as a leech sucks blood, they suck the radioactive discharges. Are you feeling better now, lad?"

Sparks sat up. A wave of dizziness sent his head spinning, but he forced himself to his feet and walked over to where Captain Frome lay on the floor. Frome's eyes were closed and he was breathing in slow, gasping sobs.

Sutter was bending over Frome. "His heart is barely beating," the archæologist said. "Those damned things almost sucked the life out of him."

Sparks said nothing. He walked to the nearest port and looked out. Swift dusk was falling over Mars. Sharp shadows were creeping over the city. Blobs of darkness were huddling behind the buildings. Night was coming over this city where for centuries red death had patiently waited for the last of the Martians to awaken.

The men of Mars had not taken refuse in frozen sleep to escape a drought cycle. They had fled from a deadly enemy. The Martian had committed suicide when he saw that jewel glittering in the sunlight at the entrance to the cavern. He had known what it was. He had preferred to die by his own hand rather than face a more agonizing death.

A movement in the shadows caught his eye. He looked again, to make certain he had not been mistaken. Then he saw

what it was—a ball of red gas drifting along a foot or so above the sand. It came out of the shadow and moved directly toward the ship.

Another dead butterfly had emerged, another cocoon had burst.

But they were safe. The stout steel hull of the ship would protect them until a rescue expedition could arrive. They had plenty of food and water. Even if a thousand cocoons released their drifting death, they could not get through the walls of the ship.

Someone breathed heavily behind him. Turning, Sparks saw Angus looking out over his shoulder. The old engineer squinted at the drifting ball of gas. "Another one? I was afraid there would be others. Those two behind that door in the control room have been squealing as if they were calling to others of their kind."

"Do you think they can call others?"

"I dinna know, lad. Back on Earth the moths do it and I doubt if yon red devil came here because of idle curiosity."

The radio operator followed the red monstrosity as it drifted out of sight. He shivered, and said, "Well, we're safe here."

"About that, I dinna know either," McIlrath answered, shaking his head.

It was not so much what he said but the way he said it that sent a sudden chill to the radio operator's heart. But Angus refused to answer his questions. Instead the engineer led him down the corridor to the control room. The door was still blocked. It was a stout sheet of aluminum alloy.

Putty had been plastered around the cracks.

"While you were still unconscious," McIlrath explained, "those devils began to ooze through the cracks between the edges of the door and the facing. We stopped them up with a bit of putty, but—"

"But what!" Sparks exploded. "You surely don't think they can come through that door?"

"I think they can't, lad," the old Scot answered, "but I remember that door the Martians built to seal their cavern. It was at least a foot thick. But the outer surface was pitted with holes that were almost six inches deep, as if something had tried to eat its way through the barrier, and had failed. It wasn't rust, either, for in this cursed dry desert metal will scarcely rust. So something else must have eaten those holes in that door, and the only thing that could have done—"

He broke off to stare in slowly mounting horror at the door they were facing. At the same instant Sparks saw what was happening.

A tiny smudge had appeared on the gray surface. It looked a little like a drop of acid. It was about the size of a dime, and it was growing in size. As it grew it turned distinctly reddish.

"They are eating their way through the door!" Sparks whispered. He started to slap at the reddish spot but McIlrath knocked his hand away. The engineer seized a wad of putty from the floor and slapped it over the spot. It ceased growing. On the other side of the door an angry whine sounded. "Damn you," he grunted. "That stops you this time."

"Yes, but for how long?" Sparks whispered.

McIlrath didn't answer.

Sutter came running through the corridor. "I just wanted to tell you," he panted. "There are a lot of those things outside. They're doing something to the glass in the portholes, and—"

They didn't wait for him to finish but raced back to the stern of the ship. A glance showed that the archæologist was right. Dozens of blobs of glistening gas floated over the ship. A few were clamped over the glass of the ports. Under the action of some acid they secreted, it was flaking away.

Nobody said anything, but each knew that doom was coming toward them. Slowly but surely the glass in the ports would be disintegrated. If they closed the ports with metal, the monstrosities would eat through the metal. There was no place in the ship that promised safety, with the possible exception of the cook's galley, which was in the heart of the ship and pro-

tected by metal barriers on all sides. In time even those barriers would fall.

"There's got to be some way to whip those devils," Sparks grated.

Sutter was twitching as if he had the palsy.

Only the old engineer was calm and he spread his hands in a hopeless gesture. "Yes, lad, there probably is. But guns didn't work—"

"Sparks," a weak voice whispered. The radio operator jerked around to see who was calling him. He saw Captain Frome. The captain had spoken. "What's happening?"

The radio man told him. Frome sighed. "I wish I could suggest something. But I can't. Too weak even to think. So I'm turning everything over to you, lad—"

"To me!"

"Yes. I ought to put you under arrest . . . for disobeying me . . . when I told you to save yourself. Instead I'm putting you in charge . . . of the remnants of this expedition. I'm not doing this just because you showed initiative and daring . . . when you saved my life . . . but because you're old 'Find-a-way-or-make-one' Avery's son. He never let anything stop him. And you're his son. You'll get us out of this mess . . . if anybody can."

The radio man's mind was reeling. Captain Frome was telling him that he was the boss. "But what about McIlrath and Sutter? Will they—"

"I think they will. But let them answer for themselves."

Sutter nodded nervously. "I don't care what's done as long as we get out of here alive."

McIlrath said simply. "I followed your father, lad. You're his own true son. I will not hesitate to follow you."

The surge of exultation that leaped up in Sparks was drowned in the recognition of his new responsibility. Before, he had been taking orders. Now he was giving them. He well knew that Frome had had another reason for designating him as acting captain. Sutter and McIlrath were both too old to

respond quickly in an emergency. He was young, his reactions timed to split seconds. And if they were to escape alive, they had to have a leader who could react instantly.

He stood up. "We'll carry Captain Frome into the galley. It's the best protected spot in the ship. We'll take all our emergency equipment in there. We'll plug the porthole with putty. And after that—" But he didn't finish the sentence. He knew the metal walls of the galley would yield in time.

After they had carried everything to the galley, Sparks came back to the stern. McIlrath followed him. "What are ye planning to do, lad?" he asked quietly.

"What makes you think I'm planning anything?" Sparks answered sharply.

"Ye've got the same quiet ferocity in your eyes that your father had. When he was planning something dangerous, and didn't intend to tell anybody about it, he looked just exactly like you do now."

"Yeah?" Sparks rasped. "Well, I am planning something, but you can't stop me. You heard what Frome said. I'm in charge now."

The engineer's eyes did not falter. "Ye needn't remind me of that, lad. I'm not trying to stop you. But if I know what it is you're doing, I might be able to help you."

"Oh!" the radio man answered. "I *am* planning something. I didn't tell you because I was afraid you might kick about it—think it was too dangerous. But it's the only way I can see for us to have even a chance to get out of here alive."

"And what is that, lad?" McIlrath asked quietly.

"You remember my father had a saying," Sparks answered. " 'For every evil, nature provides a virtue. For every poison there's an antidote. For every disease, there's a cure—somewhere—' There is something that will whip these gas balls, something that will destroy them. They've got a weakness, somewhere!"

"I also remember the rest of that saying. Nature provides

a way to cure everything that goes wrong. *But she doesn't hand you that cure on a silver platter. You've got to find it yourself!* I don't doubt there's a way to whip these red devils, but, lad, how are we going to find it in the few hours we've got left?" The old engineer's face was wrinkled into a frown of pleading perplexity.

"By going to the only possible source of information, the Martians themselves. They fought these damned things for centuries. If anybody knows what to do to lick 'em, the Martians do," Sparks answered.

"But they fought and lost," McIlrath protested. "They hid away in a hole. If they had known how to whip their enemy, they would have done it."

The radio man's youthful face clouded. "I've thought of that," he said desperately. "But maybe they ran out of ammunition to fight with. The fact that they put their city in order shows they expected these damned radium suckers to be gone when they awakened. Anyhow, they're our only hope. We can either take a chance that they will know how to whip these devils, or we can sit here and die waiting. I'm damned if I'm going to sit here and wait for one of those things to suck the life out of me. I'm going after one of those Martians. And this one," he finished grimly, "won't commit suicide before we get a chance to talk to him."

"But, lad—"

"But, hell!" Sparks snarled. "I'm going."

He thought the engineer meant to protest his going because he would have to run the gantlet of the growing number of gas balls outside. But McIlrath had no such intention. The old Scot knew very well that death lurked outside, but the threat of death had never stopped Richard Avery. Nor would it stop his son. It wouldn't stop McIlrath either. Very calmly he insisted on going along.

"Hell, no," Sparks rasped. Then his voice softened. "I mean, Angus, you had better stay here and help me through the emergency lock when I come back."

"Aye, lad," McIlrath answered. "I'll be waiting for you."

Sparks waited until deep darkness had fallen. Then he slipped through the emergency lock.

A globe of witchfire floated outside the lock. Sparks eyed it. All over his body he felt his skin writhe. What if one of those things caught him? He knew the answer to that. His heart would stop beating, just as Orsatti's heart had stopped, just as—

He watched the gas ball. It floated away toward the stern of the ship. He slipped to the sand and dropped on his face, crawling up against the hull. A thin whine sounded as another of the creatures passed. Or perhaps it was the same one. Perhaps it had sensed his presence and had returned. He held his breath. Death went on by.

He waited until everything was clear and then dashed across the sand. Panting for breath in the thin, dry air, he reached the shelter of the buildings—and saw a luminosity coming toward him.

He dived headfirst into the sand. Dust rose in choking clouds. The gas ball passed. He lay still, fighting for breath. The dust irritated his nostrils. He began to worm his way forward.

Two hours later he was back at the ship, a bound-and-gagged Martian over his shoulder. He took one look at the vessel, and his heart sank. It was surrounded by hundreds of balls of fire mist. Swirling over the hull, squirming against the ports, eating their way through to the food that lay inside. Hundreds of them. And others were coming.

Had they already penetrated the hull?

He lay down flat on his face and began to worm his way across the open space, the Martian still over his shoulder. The Martian had seen the gas balls. He was whimpering like a badly frightened child.

Would he reach the ship? Or would they see him and dart at him in a swarming cloud? He was now only ten feet from

the flier. A quick dash would take him to the lock. He took a deep breath, and lifted himself for the dash.

Then it happened. A gas ball, passing over him, suddenly whined angrily, and looped back toward him, hovering over him like a buzzard investigating carrion. Other luminosities, attracted by the action of the first one, came swirling downward.

They had discovered him.

It was the end. He didn't have a chance in a million. The gas balls were darting at him from all directions. He leaped to his feet, tried to race toward the emergency lock, knowing he couldn't make it.

He tripped and fell. Everything went black. Acid seemed to bite at his nose. He couldn't see. Dimly he wondered—did death come like this, a sudden rushing blackness? He felt no pain.

Something touched him. He screamed. A sharp voice said, "This way, lad."

Sparks gulped in thankfulness. McIlrath! He knew now what had happened. The engineer had been watching from the lock, a smoke projector ready. That rushing wave of blackness was smoke. Smoke! He could hear the gas balls whining as they groped through it. McIlrath guided him to the lock. The outer door clanged shut behind them.

In all his life Sparks had never been so miserable. When he had succeeded in returning to the ship with the Martian, he had thought they now had a chance to live. Instead he had learned that they were doomed. Doomed!

Two hours had passed since he returned. They were all in the cramped galley. Death was eating at the walls around them, death that now was only minutes off.

"I tried to tell you when you left, lad," McIlrath said softly, "but you thought I was trying to keep you from going, and wouldn't listen."

"I know," Sparks nodded glumly, "but hell, I didn't think

about this. All I could think was that maybe the Martians knew some way to fight these devils."

"I know, lad," McIlrath answered. "Don't be feeling bad about it. 'Twas a brave thing that ye did. And maybe they do know some way—"

"Yeah," Sparks answered gloomily. "Maybe they do."

He glanced across the galley at the Martian. He was alive all right. Scared half to death but alive. He was sitting on the floor, his back against the wall, his arms and legs bound. His bright, fear-filled eyes darted restlessly over the room. Occasionally he said something in a high, singsong tone of voice. He knew what was eating through the walls of the ship, and he might know something to do about it. Every time he spoke he might be telling them how to whip the radium suckers.

The trouble was—they couldn't understand what he said.

The men of Earth and the men of Mars had met, under desperate circumstances with the future of the planet depending on them, and they couldn't understand each other. The languages were different. John Orms, language expert, had spent eleven years trying to crack the written Martian language, and had failed.

In time, now that they had found a Martian, they would be able to understand each other. But there wasn't time.

Seconds ticked away into nothingness. A red blot appeared on the wall of the galley. McIlrath slapped a wad of putty over it, and looked down at the diminishing supply. There was very little putty left.

Sutter twitched nervously. McIlrath calmly sat down. Sparks glowered at the Martian. To have safety so near, and yet so far away. It was maddening!

Frome, lying on the floor, tried to sit up and fell back. "Could I," he whispered, "have a drink of water?"

They had plenty of water. Sparks drew a cupful from the cooler. The eyes of the Martian followed him as he lifted Frome to a sitting position. The captain drank. "Any luck, lad?" he said weakly.

"No," Sparks answered, "but we're not finished yet. There's some way to lick these damned things and I know it." He rose to his feet. He was lying to himself, trying to lie to them. They were finished. And when the rescue expedition came after them, as it certainly would, it would be finished too. The bones of men would lie with the bones of Martians in the dry deserts, in the dust of the deserted cities. The exploration of the planet, so bravely begun, might well end here. The labor of the men who had fought space to reach Mars, the daring of the pioneers who had braved the deserts, would have resulted only in death.

Then Sutter screamed, an inarticulate screech, the yell of a man who has seen death coming, and knows he cannot stop it.

A red dot, the size of the end of a lead pencil, had appeared on the outer wall. It began to grow in size.

Slowly the archæologist slumped to the floor. He had fainted. The pressure had got too much for him. They let him lie. Death would come easier if he did not know it was coming.

The red dot grew. The galley was silent. In the silence men breathed heavily.

The Martian screeched. Another red dot had appeared on the wall.

"Damn you, shut up!" Sparks rasped. "We're in the same boat—"

He broke off to stare at the Martian. A sudden savage hope sent his heart pounding.

The Martian seemed to be having a fit. He was twisting and turning and trying to free himself from his bonds. His eyes were darting continuously from the two men to another object in the room. He looked like a dog trying to warn his master that a grizzly bear is lurking on the trail ahead. And like a dog he could only tell what he knew by howling and begging with his eyes.

"He's trying to tell us something," Sparks whispered tensely. He leaped across the galley and cut the ropes that bound the native. The Martian struggled to his feet. He leaped

across the room toward—Sparks caught his breath—the water cooler. He drew a cupful of the liquid, turned and splashed it across the red dots growing on the wall.

Something hissed like an angry snake. Hissed and drew away. The dots stopped growing.

"Water," Sparks gulped. "The one thing this damned planet has always needed and never had. Water! Those damned gas balls have evolved in a desert. They can't stand water; it kills them. Sutter was right. The Martians went into frozen sleep because their water supply had given out. The answer was right under our eyes all the time. The very dust that choked us should have told us what to do."

He was screaming now. "There's always a cure for every evil. But you've got to find that cure. And we've found it. Take that, damn you! And that."

He was splashing water on the walls, wetting them down. McIlrath and the Martian were helping him. The putty began to slip and fall away. Luminosities tried to surge through the holes. When water struck them, they sizzled like a skillet full of hot grease, burst into steam, and steaming died.

Two Earthmen and a Martian fought side by side, and they used as a weapon the one thing of which Mars for centuries had never had enough—water.

When the rescue ship came knifing down out of the sky, the surprised captain found four weary, happy Earthmen to greet him. Two of them supported the man he recognized as captain of this ill-fated expedition. But when he came to greet Frome, it was Sparks who stepped forward, and gravely saluted.

"Avery, sir, acting captain of the rescue ship *Kepler*, reporting."

The puzzled captain acknowledged his salute. They told him what had happened. "I get that," he said. "You did a swell job. But," he gestured toward the other group. "Who are these?"

"The men of Mars," Sparks announced. "We've found them."

They had awakened the Martians from their frozen sleep. They stood in a large group apart from the Earthmen.

"But what's the matter with them?" the captain asked. "What are they acting like that for?"

The Martians were waving their hands in the air, turning somersaults, twisting and contorting their bodies.

"They're trying to tell you how happy they are to see you," Sparks answered. "They haven't learned how to talk to us yet —but they sure know how to make signs."

H. B. Fyfe

LOCKED OUT

Life on the spaceways was ever perilous—especially when men could still make silly, careless mistakes.

THE ODDS WERE who knows how many million to one, but it had happened.

"It *would* be me," grumbled Keith. "Just my luck. No matter where that damned pebble was going, I'd have been right in the way. And on top of that, I have to go and make it worse!"

He swore. That was before he had begun to realize how serious his situation really was.

Here he was, three days out of Mars, a quarter of the way to the nearest asteroids, sitting on the outside hull of his rocket. And likely to stay there because he was locked out.

It had started when Keith, an asteroid prospector on his way from Mars, had put on his spacesuit and gone outside to see what had happened when a diminutive meteor had glanced off his small, one-man rocket. From the feel of the blow, he had judged it to have hit on or near the port air lock. Then he had found that the lock would not open from the inside.

In a rush to detect any injury to his craft, Keith had hurried to the other port on the opposite side of the ship. He had passed through and paused briefly to close the outer door by means of the external control lever set into a hollow beside the port. That was when he had fixed things.

He must have pulled the lever too roughly in his haste. The port, instead of swinging neatly shut, had jammed while still ajar. Something had gone wrong with the operating mechanism.

Keith had been annoyed but not worried. The port would neither close completely nor open, but he had decided to leave it until he had seen the other damage.

Judging from the groove in the metal of the hull, a meteor about the size of a football had struck the rocket a glancing blow. The whole port was dented, and where the groove crossed the edge of it to continue across the hull, the door was fused tight.

Fortunately, there was no air leak.

So now, he was locked out. Keith sat cross-legged on the hull beside the port and contemplated it glumly. He was not worried yet, but he did not know just what to do. All he had with him in the way of tools was an iron bar he had carried with some vague idea that he might need to pry out the meteor if it had penetrated. There was a six-inch knife in a sheath at his belt, part of his suit equipment, and he had, of course, his flashlight; but they did not seem to be of much use.

The port, a cylinder two feet thick, closed flush with the hull. Its narrow, half-inch-thick rim fitted snugly into the hull around the entrance where there was a corresponding depression in the streamlined metal. True, there was a deep groove in it, but he did not see how he could get a purchase for his iron bar. He fervently prayed that no other prospector might come along the same curve from Mars and catch him in this ridiculous plight. The story would spread to every spaceport in the system: how Tom Keith, the space-dopey prospector, had locked himself out of his own ship.

Tired of sitting there idle, he rose and walked across the top of the ship to the starboard air lock. This was open about two inches. Here the ruddy glow of the hull, faintly lit by the red planet beyond the stern, was supplemented by the gleam of the electric bulb inside the air lock. Since the outer door was still partly open, this had not been automatically turned off. The projecting rim, two feet or more from the hull—the thick-

ness of the door plus the inches it was open—offered him an opportunity.

"And then," pondered Keith, "there might be something to be done with the wiring of the control lever."

He had a pocketknife with an assortment of blades that included a screwdriver, but it was where it naturally would be when he wanted it—in his pocket, under the spacesuit. Maybe he could use his sheath knife if he had to.

Taking a small mirror that hung on a chain from his neck, he looked at the dial of the oxygen tank on his back. His oxygen, he estimated, was good for two hours. Meanwhile, he had better be doing something.

Keith took a grip on his bar and tried to insert it into the opening left by the jammed port. He cursed a blue streak when he found that the bar was a fraction of an inch too thick. With the persistence of anger he attempted to force it. With the result, not unnatural, that it slipped, allowing him to project himself into space as the resistance suddenly disappeared.

"Oh, hell!" swore Keith as the metal of the hull receded. He knew he would float back, given time, since the ship was the only matter hereabouts to attract him. Nevertheless, it was hard to watch himself losing contact with the only haven he had, the only solid, material thing anywhere near him.

He floated there in the dark of space, with a million sparkling gems of light surrounding him, making it all seem like a dream. He felt fear creeping upon him, and almost reached out for something in reaction to man's age-old instinctive fear of falling.

It was nearly fifteen minutes before his eager feet stood once more on the hull. He resolved to be more careful in the future.

This time he moved farther around the port, where the gap between the rim and the hull was less. He fitted the end of the bar under the projecting rim. He soon found that it was too narrow to hold the end of the bar when he lifted up on his end,

and he had no weight to speak of with which to push it down. There was no space he could get leverage.

"Let's see," he muttered to himself, "I wonder if I can put the bar lengthwise under the rim and pull on both ends. Maybe I just ought to slam it one, and trust to the jar to loosen it. Still, I think I'd better not try that yet—" He felt along the rim with clumsy gloves. "I hope to Sol none of the other boys come along this curve and find me like this before I have a chance to get in. I doubt it, though. I took off ahead of them all, and I'm still going."

Yes, he was still going. Now that he would be willing to turn back to Mars, as he should have immediately he was struck by the meteor, he could not reach the controls.

He took one end of the bar in each hand, bent, and slipped the middle under the rim, tangent to the main cylinder of the door. Then he pulled hard to straighten up. A man's strength in space, free of gravity, was considerable; perhaps he could force the port into a plane parallel with the hull.

Unfortunately, gravity—or its absence—did not much affect the present situation. The port resisted with all its powers of friction and insisted on remaining jammed. Keith had a second's exultation when he felt something give slightly, but he discovered that he had merely bent the rim. He bent it in two other places, then gave up.

"Well," he thought, "I'll see about that lever."

He drew his sheath knife and focused his flashlight on the control lever. He confirmed what he already knew: that the lever moved easily enough but without producing any results. He began to unscrew the metal fitting that protected its base. Perhaps the wiring—

In spite of frequent slips of the knife point, he finally succeeded in ripping out astonishing quantities of fine wire without gaining any knowledge of what might be the trouble. There did not seem to be much to lose, so he did not hesitate to tinker. The lever remained impassive to all manipulation.

"Well, it's a cinch I'm not getting anywhere this way," decided Keith at last.

He sheathed his knife and stood up stiffly. There was nothing he could think of that would help here. He walked toward the nose of the ship, thinking hard.

It was beginning to dawn on him that the situation might be more than annoying. It might become—dangerous. Fantastic, he thought, that such a trivial slip as closing a port wrong or pulling a lever a little too roughly could result seriously; and yet—here he was, the sardine on the outside of the can. And without a can opener!

"To tell the truth," Keith told himself, "I *don't* quite see how the hell I'm going to get inside. And I certainly can't stay out here for the rest of the trip!"

He stood on the unbreakable glass of the control room portholes and gazed longingly down at the lighted room. There was the control desk, its levers and push buttons and dials shining leeringly up at him; there was his padded chair, equipped with straps for take-offs so that he would not break his silly neck with the shock of his rockets; there were the instruments he had laid aside— Only a few feet away, yet more surely out of his reach than the very stars.

"NO!" shouted Keith, and the sound thundering in the confines of his helmet. "There must be *some* way out—I mean in. I just haven't thought of it yet. This is too damn silly for words. Lock myself out! Hell! It just isn't done!"

He strode aft for want of something to do. He stood disconsolately on the rocket tubes, awaiting inspiration. Off to the starboard a star moved. He stared. Another ship!

Keith scurried around the rocket tubes until the tapering tail was between him and the moving dot of light. It must be Larry Jensen's *Firefly*. She was the only ship that could have overhauled him so quickly. Larry carried a crew of four, which meant there would be that many more idle eyes on the look-out for another ship. He hoped none of them had happened to have a glass on his ship. They might become curious and investigate,

in which case he would become a laughingstock. The man who locked himself out!

He skulked for some time on the far side of the ship, walking moodily up and down. Inspiration was courteous; it did not interrupt his thoughts. It looked as if he would have to sit out here until the rocket arrived at the asteroid belt. Even longer, because there would be nothing to stop it then.

"Wow!" he remarked to himself. "That's the answer. What do I use to stop when I land in a planet? The parachute. And where is the parachute carried? On the topside, with a sliding hatch in the hull to let it out. Tom, my boy, you've got it at last. There's a manhole at the bottom of that 'chute compartment, I know."

He bounded forward, peeped cautiously around the hull to make sure the *Firefly* was going about its business, then made straight for the parachute hatch.

Keith had some difficulty in locating it at first, since the metal fitted very precisely and he did not wish to attract possible attention by the use of his flashlight. Toward the bow was a triangular flap that was raised by the lever that thrust the small pilot 'chute out during a landing. Reaching aft from this was a hatch that slid back as the main parachute was pulled from its compartment.

He drew his knife and tried to probe into the fine crack where the triangular flap came to a point over the sliding hatch. The blade was not thin enough to go in very far. He estimated that it reached no more than half an inch, and the metal was thicker than that.

Nevertheless, he slid the point along the crack from one end to the other. There was apparently no catch that could be opened, no way of prying up the flap. He went all around the hatch, with no success. He could insert the knife hardly at all into the horizontal slits where the sliding part of the hatch fitted smoothly under the streamlined outer metal.

Enraged at his helplessness, Keith seized his bar and swung

viciously at the flap where the base of the triangle formed the end of the rectangular hatch. Except that he nearly lost his grip on the bar when it bounced off, nothing happened. He could detect only a small scratch.

"Not even a dent," he muttered disgustedly, and sat down on the hatch. "Well, wrong again. What now, I wonder?"

He lifted the mirror and read the dial of his oxygen tank. He had about an hour before he had to change to his emergency tank. Meanwhile, he *must* think of something.

"Let's see," he conferred with himself, "I've got to analyze this sytematically. Parachute hatch—out of the question. Port lock—smeared by meteor, nothing doing. Starboard lock—jammed. Well, maybe I could jar it open."

He took the bar and went over to the air lock. After trying once more in vain to pry it open, he knelt on the hull. He took a good hold with his left hand on the wires dangling from the cavity left by the control lever, and gripped the bar by one end. Then he put a good-sized grunt into the swing and brought the bar down on the jammed port.

The port stayed just as it was, except that the rim showed one more dent in its battered surface.

He swung again with everything he had, and this time he made an obvious mark. The port still did not budge.

"It can't be!" cried Keith. "If I can make a dent in *that,* it ought to move!"

The air-lock door thought not. Keith subjected it to a really insane battering, crumpling the thin rim and leaving marks of his rage all over the port; but he was not reaching the source of the trouble. The jam-up was somewhere inside the air lock, in the mechanism rather than in the door, which served merely to protect the jam.

The bar bent beneath the weight of his blows. Finally, brittle because it had had time to radiate away the greater part of the heat it had possessed when he had brought it out, it snapped in half.

He staggered to his feet, staring at the half left in his hand

with an expression of hurt surprise. The other piece had already disappeared into the dark of space.

Keith never knew how long he stood there staring at the broken bar, the symbol, it seemed, of his helplessness—of man's humble power compared to the cruel, cold strength of the void. At last he roused and hurled the piece of iron after the other. He knew vaguely that he ought to have kept it. He did not have so many assets just now that he could afford to fling them away.

Keith took to walking around and around the ship. It was better, he found, than standing still. It was in the course of this pacing that he was brought to a halt by the thought of what lay opposite the parachute hatch. On the bottom of the ship were the compartments from which the three rectangle landing wheels were let down.

He turned back and found the spot. It seemed strange to be looking down at them instead of lying on his back in the dirt of a spaceport field to examine them. Nevertheless, he located the places where they were concealed. The sight cooled his ardor.

There was even less chance than at the 'chute hatch.

"And even if I did open one somehow," he reflected, "there's no chance of passing anything as big as a man through that little hole, assuming that I could get the wheel out of the way in the first place."

He turned away and began to walk up and down. The sky watched him with a million bright, tiny eyes, waiting—waiting.

"Come on, Tom," he muttered. "You can't leave it at this. Aren't there any other openings in this can?"

He pivoted at the end of his beat and started back toward the rocket tubes. The rocket tubes!

The rocket tubes! He tried to run in his excitement, and took off again, floating his leisurely way sternward and swearing colorfully. Gradually he settled to the hull. By the time he had, and had reached the rockets, the first enthusiasm had worn off.

"Humph!" he grunted. "They're not any too big. Espe-

cially the six in the circle. Guess I'd better try the main one in the center. I can swing myself down by this little steering rocket —there!"

He maneuvered himself past the gaping muzzles that had blasted him away from Mars and thrust his helmet into the main tube.

He switched on his flashlight; for, though the distant Sun and Mars lit the ship from aft, little light slipped past his bulky, spacesuited figure. He noticed that the lining of the tube was already somewhat pitted and worn from the explosions of the liquid hydrogen and oxygen.

"And Horner swore he did a firstclass relining job! Wait till I get hold of him!"

Then it occurred to him that he might never again "get hold of" anyone. He crawled ahead. The light finally showed the end of the tube. There were three holes there, a smaller one between two others. The two larger holes supplied the liquid hydrogen and oxygen, while the small one injected kulite, the synthetic catalyst that lowered the temperature of the furious explosives without lessening the drive.

Keith looked curiously at the slightly projecting jets of the firing mechanism, which studded the circumference of the tube about a foot from the end. He had never been inside a rocket tube before—that was usually left to those repair men who made a specialty of it—but he could see how they spat out sparks to ignite the fuel sprayed through the grills over the fuel vents.

He sought for some way of getting through. Perhaps something was removable. Perhaps the base of the tube could be unscrewed. No, the rocket tube was a solid unit, backed up by several feet of tough alloy to withstand the shock of the explosions and connected to the rest of the ship only through the three feeding vents. He unscrewed the grills over the vents after much grunting and poking with his sheath knife—they had been partially fused tight. His light showed some obstruction a short distance up each pipe, which he guessed to be the

lower valves, beyond which the next charge of fuel awaited his touch on the controls.

Keith crawled out.

"No use butting my head against that solid mass of metal," he growled, "but this is going too far! I suppose everyone has to die sometime—but this is so damn *foolish!*"

He swung up to the hull and grouchily wandered forward. Presently he found himself at the port air lock. He kicked experimentally at the fused groove where the meteor had passed. No, that was not the answer.

A light moved out in the void. Another ship! Farther away this time, but Keith was glad to see it. He had had about enough. He was beginning to get scared. Let them laugh if they wanted to; he would be satisfied if someone would pull him out of this hole. He no longer cared what followed.

He ran forward and waved wildly in case anyone should have sighted his ship and continued to watch it. The other rocket drew abreast of him, some ten or fifteen miles distant.

Keith ceased his violent exertions. He switched on his flashlight and tried to signal. With pounding heart he watched for some sign that he was "hitting" the stranger. In space, with no air to diffuse the light, no beam was visible. His only chance was to make the torch point directly at the observer so as to throw a disk of light on him, and at ten miles—

"Come on, you can do it!" he encouraged himself as he strove to steady his shaking hands. "Steady, now. Steady, there! No, that's not it—"

The ship passed onward.

Keith sat upon the hull. After a time he read the dial of his oxygen tank again. Half an hour left. In the small mirror he caught a glimpse of his face. There was light enough, since he happened to be facing the distant, shrunken Sun, to see that he was likely to have a bad burn. He did not feel the warmth that Sol was capable of causing even at this range, because his

suit was insulated against the passage of heat either way. The rays of the Sun had, however, played through the face plate to his skin, which was showing the effects.

He sat there with his back to the Sun for the best part of the half-hour. Occasionally he would turn to scan the void for another moving point of light that might mean a rocket ship. No more came. Space was limitless, and the others who had left for the asteroids at the same time, or immediately after he had, could have chosen hundreds of courses that would not bring them even within sight of him. Keith wondered if he were the same man who two hours ago had hoped so fervently that no one would discover his predicament. He could hardly believe he had been so blind.

For the twentieth time he rose and peered all around. Nothing. Even the two ships that had passed him had long ago vanished into the depths of the void. Any help he needed he must supply himself.

Pacing distractedly around the ship, he paused now and then to kick at the battered port of one or the other of the air locks, but neither showed the slightest sign of loosening.

In a frenzy of desperation he flung himself down over the control room port and hammered madly upon it with his gauntleted fists. Below, the banked levers and buttons gleamed mockingly up at him. He scrambled, exhausted, to his feet and wandered dazedly about the hull. Why could not just one of the ships that had been at the spaceport pass near him? Just one. It was not fair that he should have not a single chance—

He remembered that he had had two chances, and had thrown them away through fear of ridicule. Or had he thrown them both away? He had tried to signal the second ship. Maybe they *had* seen him, and had gone on anyway. Maybe they did not think it worth while to stop for just one man. The dirty—Was it too much trouble—

He was calmed by the necessity of changing his oxygen tanks. He accomplished this without mishap, having to close the valves to his helmet and on the hoses of the tanks only a

moment. The discarded tank spat out a faint halo that represented the last of the gas, vaguely visible here in space. Keith had an idea as he gazed blankly at the tank. As things stood he had only an hour.

"Only an hour," he thought. "Only an hour to find a way, or only an hour, to wait for something. I have only an hour to live. To—*be.* And after that I—just *won't exist.* As if I never was—"

He shook himself impatiently. Well, maybe he could manage to stretch it a few minutes longer. Maybe he could "cheat" a little. He picked up the empty tank and started toward the stern. A further thought made him return and remove one of the outside thermometers from beside the control-room porthole.

Once more Keith swung himself across to the main rocket from the steering tube. He crawled in and inched his way along, keeping his flashlight shining ahead of him. In the vacuum, its beam did not light up any part of the tube save that directly before him. It served his purpose, however, which was to keep from cracking his helmet at the end of the tube.

He reached the end and examined the vents. The grills he had already removed, on his other expedition into the rocket. Experimentally he thrust the blade of his knife into one of them.

"Now, with a little luck," he told himself, "I ought to be able to fill a tank with oxygen—if all goes well."

He pushed the knife farther, and just then when he thought it would be too short, he succeeded in forcing the valve. He snatched back the knife as a blob of liquid plopped out. It spattered against the metal of the rocket tube, where it began to shrink gradually. The rockets were considerably warmer than the liquefied gas, since they had been receiving the rays of the distant Sun. The liquid was sucking up the metal's warmth and expanding under the lack of pressure into a gas.

Keith poked the thermometer into the diminishing puddle.

The space thermometer showed —252.5 C. This, then, must be the hydrogen vent. Oxygen boiled at over —183. The other vent was the one he wanted—

Or did he?

Keith stopped with the knife poised below the oxygen vent. He looked at the empty tank before him—at the knife—at the flashlight—

"I wonder," he muttered uncertainly. Still, these were all he had with which to gain an entrance to the ship. He might as well try as to sit out there and suffocate by degrees.

Coming to a decision, he turned to the hydrogen pipe. Having unscrewed from the tank the cap from which dangled the metal hose that fastened to his helmet, he placed the container under the vent and probed with his knife blade. He managed to get most of the drop into the tank, although some spilled. He poked again, with better results. As he became more practiced, he spilled less. He did not care to hold the knife continuously in the valve and let the hydrogen run down the blade into the tank. It would probably trickle over his glove, and although his suit was insulated so as not to conduct heat very well—still, —252!

Having obtained what he considered a sufficient quantity, he squirmed out of the rocket tube and pulled himself back to the side of the hull. There he set the tank in the sunlight to warm. When the contents had expanded to a gaseous state, they would be under pressure. He made sure the cap was tight.

While he waited, he took a look at his emergency tank's dial. It might be close, but he thought he had enough. He walked along the top of the hull, pausing to stare long at the top of the parachute hatch. After a while he went back for the tank.

He opened the hose valve slightly, not trusting the dial. A powerful jet of gas blew out to disperse in the emptiness of space. He closed it and carried the tank up to the hatch, where he set it down. He laid the flashlight beside it and drew his knife—

Some three days later a group of mechanics eyed each other puzzledly as they followed Keith across the Mars—4 Spaceport. Frequently one or the other would pause to glance back at Keith's ship and scratch his head. The original ground crew could be distinguished by the various tools they carried; but many others, pilots and off-duty ground men, had drifted over to swell the accumulating crowd.

Keith, in a lighthearted mood not at all reminiscent of his despair three days before, led them to the canteen, where he ordered drinks all around. This invitation was received with polite but somewhat restrained thanks. Keith looked around.

The semicircle of men, breathing deeply and quickly in the thin air of Mars, seemed like a pack of panting, expectant wolves.

"Well?" demanded a burly mechanic when the silence was beginning to become oppressive. He laid the oxy-acetylene torch he bore down on a table.

"Well, what?" parried Keith.

The burly one pulled out a chair very deliberately and sat down with an air of being above childish play. Another of the ground crew amplified the question.

"Look, Keith," he pleaded, "you left here six days ago—only six days—and in a ship that was in perfect order. I went over her myself. You couldn't have gone anywhere in that time. There's no place that near, except the moons and they're private property."

"You come back," a third took up the plaint, "with your ship closed so tight we have to cut our way in to get you out. Both ports, the 'chute hatch, and even a little bit around the portholes—all banged up and dented in. From the outside! If you couldn't even get out, *what happened?*"

"Oh, that," began Keith.

"Come on, come on," demanded the chorus. "Give!"

Keith "gave."

He told about the meteor, how he had jammed the port in his haste, and of his subsequent fruitless attempts to pene-

trate the rocket's stubborn defenses against space. When he arrived at the point where he had carried the tank of hydrogen up to the parachute hatch, the silence in the place was as that of the tomb. Even the fat proprietor had forgotten his work and joined the audience.

"And then?" demanded the burly mechanic, as Keith paused.

"And then—well, this may seem screwy; in fact, if I hadn't been partly off my nut at the time, I probably would never have thought of it," said Keith. "I sucked in as much oxygen as I could and disconnected the oxygen tank. I switched the flashlight on and very gently cracked the bulb. It stayed lit just the same, since space is as good a vacuum as was in the bulb in the first place. When I got the glass off, I laid the flashlight on that spot on the 'chute hatch—you saw that spot?"

"You bet," nodded the husky.

"Rather hard to miss, what?" drawled one of the pilots.

"Well, on that spot. Then I opened the valves on both tanks and played the gases out of the hoses over the same place. An object at bright-red heat, or around 900 degrees centrigrade, will ignite a mixture of hydrogen and oxygen. The filament of an electric bulb when lit goes well over 2000. So the flashlight bulb ignited them and I had a fairly decent oxy-hydrogen torch."

"Ah!" The sigh rustled through the room. "Then that's what made the spot with the hole."

"That was it. I had an oxygen drunk on, and I didn't hold it quite steady. You know, an oxy-hydrogen flame is plenty hot —it'll reach 2500 in an inclosed space, although mine wasn't inclosed—but it doesn't give much light. I wasn't always sure just where it was hitting. Then, later, just before I had cut all the way through, I was beginning to want air pretty badly. That's why I messed the whole place up."

"But you cut through," remarked someone. "That was what counted."

"I suppose so. I lasted just long enough to make it. I

burned the hole through the flap of the hatch. Then I had to yank the thing up. I reconnected the oxygen tank to my helmet, but there wasn't much in it. It helped, though, until I got a one-handed grip in the hole I had cut, and pulled the flap open."

"Those things aren't easy," said a mechanic. "They have them set to open just so fast and no faster."

"Well I know. It seemed like hours to me," laughed Keith. "I put all I had into it; I knew if I didn't get through then, I was cooked. It finally came open. I shoved back the sliding hatch, clawed at the parachute—you should have seen me trying to repack it later!—and after about ten miles of it, I found I could get down. My head was spinning by that time. I unscrewed the manhole at the bottom with my last breath and fell through."

"Lucky you didn't pass out," said a tall pilot. "You could have suffocated right there in your own ship, with your helmet shut and the air blowing out into space."

Keith shivered.

"You're right. Fortunately, I got my helmet open just before things went completely dark. My lungs were retching for air by then. You know how you—"

"Yeah, I know," nodded the pilot quietly. He did. There had been a time—

"Well, that's about all," said Keith. "I closed the manhole while I got hold of myself and broke out fresh tanks of oxygen. Then I packed the 'chute in on top of me as best I could, and swung back toward Mars. I figured I'd better have the can put back into shape before I went any farther."

"Man, were you lucky!" was the consensus.

"Was I!" agreed Keith. "At least I'm glad you can't get locked out from Mars."

"Speaking of space cans," spoke the burly mechanic, picking up his oxy-acetylene torch from the table, "here—you better carry a can opener from now on."

Lewis Padgett

THE IRON STANDARD

Alien races didn't have to be either friendly or unfriendly; they could be stubbornly indifferent—with serious effect.

"SO THE GHOST won't walk for a year—Venusian time," Thirkell said, spooning up cold beans with a disgusted air.

Rufus Munn, the captain, looked up briefly from his task of de-cockroaching the soup. "Dunno why we had to import these. A year plus four weeks, Steve. There'll be a month at space before we hit Earth again."

Thirkell's round, pudgy face grew solemn. "What happens in the meantime? Do we starve on cold beans?"

Munn sighed, glancing through the open, screened port of the spaceship *Goodwill* to where dim figures moved in the mists outside. But he didn't answer. Barton Underhill, supercargo and handy man, who had wangled his passage by virtue of his father's wealth, grinned tightly and said, "What d'you expect? We don't dare use fuel. There's just enough to get us home. So it's cold beans or nothing."

"Soon it will be nothing," Thirkell said solemnly. "We have been spendthrifts. Wasting our substance in riotous living."

"Riotous living!" Munn growled. "We gave most of our grub to the Venusians."

"Well," Underhill murmured, "they fed us—for a month."

"Not now. There's an embargo. What do they have against us, anyhow?"

Munn thrust back his stool with sudden decision. "That's something we'll have to figure out. Things can't go on like this.

We simply haven't enough food to last us a year. And we can't live off the land—" He stopped as someone unzipped the valve screen and entered, a squat man with high cheekbones and a beak of a nose in a red-bronze face.

"Find anything, Redskin?" Underhill asked.

Mike Soaring Eagle tossed a plastisac on the table. "Six mushrooms. No wonder the Venusians use hydroponics. They have to. Only fungi will grow in this sponge of a world, and most of that's poisonous. No use, skipper."

Munn's mouth tightened. "Yeah. Where's Bronson?"

"Panhandling. But he won't get a *fal.*" The Navaho nodded toward the port. "Here he comes now."

After a moment the others heard Bronson's slow footsteps. The engineer came in, his face red as his hair. "Don't ask me," he murmured. "Don't say a word, anybody. Me, a Kerry man, trying to bum a lousy *fal* from a shagreen-skinned so-and-so with an iron ring in his nose like a Ubangi savage. Think of it! The shame will stay with me forever."

"My sympathy," Thirkell said. "But did you get any *fals?*"

Bronson glared at him. "Would I have taken his dirty coins if he'd offered them?" the engineer yelled, his eyes bloodshot. "I'd have flung them in his slimy face, and you can take my word for it. *I* touch their rotten money? Give me some beans." He seized a plate and morosely began to eat.

Thirkell exchanged glances with Underhill. "He didn't get any money," the latter said.

Bronson started back with a snort. "He asked me if I belonged to the Beggars' Guild! Even tramps have to join a union on this planet!"

Captain Munn scowled thoughtfully. "No, it isn't a union, Bronson, or even much like the medieval guilds. The *tarkomars* are a lot more powerful and a lot less principled. Unions grew out of a definite social and economic background, and they fill a purpose—a check-and-balance system that keeps building. I'm not talking about unions; on Earth some of 'em are good—like the Air Transport—and some are graft-ridden, like Undersea

Dredgers. The *tarkomars* are different. They don't fulfill any productive purpose. They just keep the Venusian system in its backwater."

"Yes," Thirkell said, "and unless we're members, we aren't allowed to work—at anything. And we can't be members till we pay the initiation fee—a thousand *sofals.*"

"Easy on those beans," Underhill cautioned. "We've only ten more cans."

There was silence. Presently Munn passed cigarettes.

"We've got to do something, that's certain," he said. "We can't get food except from the Venusians, and they won't give it to us. One thing in our favor: the laws are so arbitrary that they can't refuse to *sell* us grub—it's illegal to refuse legal tender."

Mike Soaring Eagle glumly sorted his six mushrooms. "Yeah. *If* we can get our hands on legal tender. We're broke—broke on Venus—and we'll soon be starving to death. If anybody can figure out an answer to that one—"

This was in 1964, three years after the first successful flight to Mars, five years since Dooley and Hastings had brought their ship down in Mare Imbrium. The Moon, of course, was uninhabited, save by active but unintelligent algae. The big-chested, alert Martians, with their high metabolism and their brilliant, erratic minds, had been friendly, and it was certain that the cultures of Mars and Earth would not clash. As for Venus, till now, no ship had landed there.

The *Goodwill* was the ambassador. It was an experiment, like the earlier Martian voyage, for no one knew whether or not there was intelligent life on Venus. Supplies for more than a year were stowed aboard, dehydrates, plastibulbs, concentrates, and vitamin foods, but every man of the crew had a sneaking hunch that food would be found in plenty on Venus.

There was food—yes. The Venusians grew it, in their hydroponic tanks under the cities. But on the surface of the planet grew nothing edible at all. There was little animal or bird life,

so hunting was impossible, even had the Earthmen been allowed to retain their weapons. And in the beginning it had seemed like a gala holiday after the arduous space trip—a year-long fete and carnival in an alien, fascinating civilization.

It was alien, all right. The Venusians were conservative. What was good enough for their remote ancestors was quite good enough for them. They didn't *want* changes, it seemed. Their current set-up had worked O.K. for centuries; why alter it now?

The Earthmen meant change—that was obvious.

Result: a boycott of the Earthmen.

It was all quite passive. The first month had brought no trouble; Captain Munn had been presented with the keys of the capital city, Vyring, on the outskirts of which the *Goodwill* now rested, and the Venusians brought food in plenty—odd but tasty dishes from the hydroponic gardens. In return, the Earthmen were lavish with their own stores, depleting them dangerously.

And the Venusian food spoiled quickly. There was no need to preserve it, for the hydroponic tanks turned out a steady, unfailing supply. In the end the Earthmen were left with a few weeks' stock of the food they had brought with them, and a vast pile of garbage that had been lusciously appetizing a few days before.

Then the Venusians stopped bringing their quick-spoiling fruits, vegetables, and meat-mushrooms and clamped down. The party was over. They had no intention of harming the Earthmen; they remained carefully friendly. But from now on it was Pay as You're Served—and no checks cashed. A big meat-mushroom, enough for four hungry men, cost ten *fals*.

Since the Earthmen had no *fals*, they got no meat-mushrooms—nor anything else.

In the beginning it hadn't seemed important. Not until they got down to cases and began to wonder exactly how they could get food.

There was no way.

So they sat in the *Goodwill* eating cold beans and looking like five of the Seven Dwarfs, a quintet of stocky, short, husky men, big-boned and muscular, especially chosen for their physiques to stand the rigors of space flight—and their brains, also specially chosen, couldn't help them now.

It was a simple problem—simple and primitive. They, the representatives of Earth's mightiest culture, were hungry. They would soon be hungrier.

And they didn't have a *fal*—nothing but worthless gold, silver and paper currency. There was metal in the ship, but none of the pure metal they needed, except in alloys that couldn't be broken down.

Venus was on the iron standard.

"—there's got to be an answer," Munn said stubbornly, his hard-bitten, harsh face somber. He pushed back his plate with an angry gesture. "I'm going to see the Council again."

"What good will that do?" Thirkell wanted to know. "We're on the spot, there's no getting around it. Money talks."

"Just the same, I'm going to talk to Jorust," the captain growled. "She's no fool."

"Exactly," Thirkell said cryptically.

Munn stared at him, beckoned to Mike Soaring Eagle, and turned toward the valve. Underhill jumped up eagerly.

"May I go?"

Bronson gloomily toyed with his beans. "Why do *you* want to go? You couldn't even play a slot machine in Vyring's skid row—if they had slot machines. Maybe you think if you tell 'em your old man's a Tycoon of Amalgamated Ores, they'll break down and hand out meal tickets—eh?"

But his tone was friendly enough, and Underhill merely grinned. Captain Munn said, "Come along, if you want, but hurry up." The three men went out into the steaming mists, their feet sloshing through sticky mud.

It wasn't uncomfortably hot; the high winds of Venus pro-

vided for quick evaporation, a natural air conditioning that kept the men from feeling the humidity. Munn referred to his compass. The outskirts of Vyring were half a mile away, but the fog was, as usual, like pea soup. On Venus it is always bird-walking weather. Silently the trio slogged on.

"I thought Indians knew how to live off the land," Underhill presently remarked to the Navaho. Mike Soaring Eagle looked at him quizzically.

"I'm not a Venusian Indian," he explained. "Maybe I could make a bow and arrow and bring down a Venusian—but that wouldn't help, unless he had a lot of *sofals* in his purse."

"We might eat him," Underhill murmured. "Wonder what roast Venusian would taste like?"

"Find out and you can write a best seller when you get back home," Munn remarked. "*If* you get back home. Vyring's got a police force, chum."

"Oh, well," Underhill said, and left it at that. "Here's the Water Gate. Lord—I smell somebody's dinner!"

"So do I," the Navaho grunted, "but I hoped nobody would mention it. Shut up and keep walking."

The wall around Vyring was in the nature of a dike, not a fortification. Venus was both civilized and unified; there were, apparently, no wars and no tariffs—a natural development for a world state. Air transports made sizzling noises as they shot past, out of sight in the fog overhead. Mist shrouded the streets, torn into tatters by occasional huge fans. Vyring, shielded from the winds, was unpleasantly hot, except indoors where artificial air conditioning could be brought into use.

Underhill was reminded of Venice: the streets were canals. Water craft of various shapes and sizes drifted, glided, or raced past. Even the beggars traveled by water. There were rutted, muddy footpaths beside the canals, but no one with a *fal* to his name ever walked.

The Earthmen walked, cursing fervently as they splashed through the muck. They were, for the most part, ignored.

A water taxi scooted toward the bank, its pilot, wearing the blue badge of his *tarkomar,* hailing them. "May I escort you?" he wanted to know.

Underhill exhibited a silver dollar. "If you'll take this—sure." All the Earthmen had learned Venusian quickly; they were good linguists, having been chosen for this as well as other transplanetary virtues. The phonetic Venusian tongue was far from difficult.

It was no trouble at all to understand the taxi pilot when he said no.

"Toss you for it," Underhill said hopefully. "Double or nothing."

But the Venusians weren't gamblers. "Double what?" the pilot inquired. "That coin? It's silver." He indicated the silver, rococo filigree on the prow of his craft. "Junk!"

"This would be a swell place for Benjamin Franklin," Mike Soaring Eagle remarked. "His false teeth were made of iron, weren't they?"

"If they were, he had a Venusian fortune in his mouth," Underhill said.

"Not quite."

"If it could buy a full-course dinner, it's a fortune," Underhill insisted.

The pilot, eying the Earthmen scornfully, drifted off in search of wealthier fares. Munn, doggedly plodding on, wiped sweat from his forehead. Swell place, Vyring, he thought. Swell place to starve to death.

Half an hour of difficult hiking roused Munn to a slow, dull anger. If Jorust refused to see him, he thought, there was going to be trouble, even though they'd taken away his guns. He felt capable of tearing down Vyring with his teeth. And eating the more edible portions.

Luckily, Jorust was available. The Earthmen were ushered into her office, a big, luxurious room high above the city, with windows open to the cooling breezes. Jorust was skittering

around the room on a high chair, equipped with wheels and some sort of motor. Along the walls ran a slanting shelf, like a desk and presumably serving the same function. It was shoulder-high, but Jorust's chair raised her to its level. She probably started in one corner in the morning, Munn thought, and worked her way around the room during the day.

Jorust was a slim, gray-haired Venusian woman with a skin the texture of fine shagreen, and alert black eyes that were wary now. She climbed down from her chair, gestured the men to seats, and took one herself. She lit a pipe that looked like an oversized cigarette holder, stuffing it with a cylinder of pressed yellow herbs. Aromatic smoke drifted up. Underhill sniffed wistfully.

"May you be worthy of your fathers," Jorust said politely, extending her six-fingered hand in greeting. "What brings you?"

"Hunger," Munn said bluntly. "I think it's about time for a showdown."

Jorust watched him inscrutably. "Well?"

"We don't like being pushed around."

"Have we harmed you?" the Council head asked.

Munn looked at her. "Let's put our cards on the table. We're getting the squeeze play. You're a big shot here, and you're either responsible or you know why. How about it?"

"No," Jorust said after a pause, "no, I'm not as powerful as you seem to think. I am one of the administrators. I do not make the laws. I merely see that they are carried out. We are not enemies."

"That might happen," Munn said grimly. "If another expedition comes from Earth and finds us dead—"

"We would not kill you. It is untraditional."

"You could starve us to death, though."

Jorust narrowed her eyes. "Buy food. Any man can do that, no matter what his race."

"And what do we use for money?" Munn asked. "You won't take our currency. We haven't any of yours."

"Your currency is worthless," Jorust explained. "We have gold and silver for the mining—it is common here. A *difal*—twelve *fals*—will buy a good deal of food. A *sofal* will buy even more than that."

She was right, of course, Munn knew. A *sofal* was one thousand seven hundred twenty-eight *fals*. Yeah!

"And how do you expect us to get any of your iron money?" he snapped.

"Work for it, as our own people do. The fact that you are from another world does not dispose of your obligatory duty to create through labor."

"All right," Munn pursued, "we're willing. Get us a job."

"What kind?"

"Dredging canals! Anything!"

"Are you a member of the canal dredgers' *tarkomar?*"

"No," Munn said. "How could I have forgotten to join?"

Jorust ignored the sarcasm. "You must join. All trades here have their *tarkomars.*"

"Lend me a thousand *sofals* and I'll join one."

"You have tried that before," Jorust told him. "Our moneylenders reported that your collateral was worthless."

"Worthless! D'you mean to say we've nothing in our ship worth a thousand *sofals* to your race? It's a squeeze play and you know it. Our water purifier alone is worth six times that to you."

Jorust seemed affronted. "For a thousand years we have cleansed our water with charcoal. If we changed now, we would be naming our ancestors fools. They were not fools; they were great and wise."

"What about progress?"

"I see no need for it," Jorust said. "Our civilization is a perfect unit as it stands. Even the beggars are well-fed. There is no unhappiness on Venus. The ways of our ancestors have been tested and found good. So why change?"

"But—"

"We would merely upset the *status quo* if we altered the

balance," Jorust said decisively, rising. "May you be worthy of your fathers' names."

"Listen—" Munn began.

But Jorust was back on her chair, no longer listening.

The three Earthmen looked at one another, shrugged, and went out. The answer was definitely no.

"And that," Munn said, as they descended in the elevator, "is emphatically that. Jorust plans to have us starve to death. The word's out."

Underhill was inclined to disagree. "She's all right. As she said, she's just an administrator. It's the *tarkomars* who are the pressure group here. They're a powerful bloc."

"They run Venus. I know." Munn grimaced. "It's difficult to understand the psychology of these people. They seem unalterable opposed to change. We represent change. So they figure they'll simply ignore us."

"It won't work," Underhill said. "Even if we starve to death, there'll be more Earth ships later."

"The same gag could work on them, too."

"Starvation? But—"

"Passive resistance. There's no law compelling Venusians to treat with Earthmen. They can simply adopt a closed-door policy, and there's not a thing we can do about it. There's no welcome mat on Venus."

Mike Soaring Eagle broke a long silence as they emerged to the canal bank. "It's a variation of ancestor worship, their psychology. Transferred egotism, perhaps—a racial inferiority complex."

Munn shook his head. "You're drawing it a bit fine."

"All right, maybe I am. But it boils down to worship of the past. And fear. Their present social culture has worked for centuries. They want no intrusions. It's logical. If you had a machine that worked perfectly at the job for which it had been designed, would you want improvements?"

"Why not?" Munn said. "Certainly I would."

"Why?"

"Well—to save time. If a new attachment would make the machine double its production, I'd want that."

The Navaho looked thoughtful. "Suppose it turned out—say—refrigerators. There'd be repercussions. You'd need less labor, which would upset the economic structure."

"Microscopically."

"In that case. But there'd also be a change in the consumer's angle. More people would have refrigerators. More people would make homemade ice cream. Sales on ice cream would drop—retail sales. The wholesalers would buy less milk. The farmers would—"

"I know," Munn said. "For want of a nail the kingdom was lost. You're speaking of microcosms. Even if you weren't, there are automatic adjustments—there always are."

"An experimental, growing civilization is willing to stand for such adjustments," Mike Soaring Eagle pointed out. "The Venusians are ultraconservative. They figure they don't need to grow or change any more. Their system has worked for centuries. It's perfectly integrated. Intrusion of anything might upset the apple cart. The *tarkomars* have the power, and they intend to keep it."

"So we starve," Underhill put in.

The Indian grinned at him. "Looks like it. Unless we can dope out some way of making money."

"We ought to," Munn said. "We were chosen for our I.Q., among other things."

"Our talents aren't too suitable," Mike Soaring Eagle remarked, kicking a stone into the canal. "You're a physicist. I'm a naturalist. Bronson's an engineer, and Steve Thirkell's a sawbones. You, my useless young friend, are a rich man's son."

Underhill smiled in an embarrassed fashion. "Well, dad came up the hard way. He knew how to make money. That's what we need now, isn't it?"

"How did he clean up?"

"Stock market."

"That helps a lot," Munn said. "I think our best plan is to find some process the Venusians really *need,* and then sell it to them."

"If we could wireless back to Earth for help—" Underhill began.

"—then we'd have nothing to worry about," the Navaho ended. "Unfortunately Venus has a Heaviside layer, so we can't wireless. You'd better try your hand at inventing something, skipper. But whether or not the Venusians will want it afterwards, *I* don't know."

Munn brooded. "The *status quo* can't remain permanently that way. It ain't sensible, as my grandfather used to say about practically everything. There are always inventors. New processes—they've got to be assimilated into the social set-up. I should be able to dope out a gadget. Even a good preservative for foods might do it."

"Not with the hydroponic gardens producing as they do."

"Um-m. A better mousetrap—something useless but intriguing. A one-armed bandit—"

"They'd pass a law against it."

"Well, you suggest something."

"The Venusians don't seem to know much about genetics. If I could produce some unusual foods by crossbreeding . . . eh?"

"Maybe," Munn said. "Maybe."

Steve Thirkell's pudgy face looked into the port. The rest of the party were seated at the table, scribbling on stylopads and drinking weak coffee.

"I have an idea," Thirkell said.

Munn grunted. "I know your ideas. What is it now?"

"Very simple. A plague strikes the Venusians and I find an antivirus that will save them. They will be grateful—"

"—and you'll marry Jorust and rule the planet," Munn finished. "Ha!"

"Not exactly," Thirkell went on imperturbably. "If they're

not grateful, we'll simply hold out on the antitoxin till they pay up."

"The only thing wrong with that brainstorm is that the Venusians don't seem to be suffering from a plague," Mike Soaring Eagle pointed out. "Otherwise it's perfect."

Thirkell sighed. "I was afraid you'd mention that. Maybe we could be unethical—just a little, you know—and start a plague. Typhoid or something."

"What a man!" the Navaho said admiringly. "You'd make a grand murderer, Steve."

"I have often thought so. But I didn't intend to go as far as murder. A painful, incapacitating disease—"

"Such as?" Munn asked.

"Diphtheria?" the murderous physician suggested hopefully.

"A cheerful prospect," Mike Soaring Eagle muttered. "You sound like an Apache."

"Diphtheria, beriberi, leprosy, bubonic plague," Pat Bronson said violently. "I vote for all of 'em. Give the nasty little frogs a taste of their own medicine. Wallop 'em good."

"Suppose we let you start a mild plague," Munn said. "Something that couldn't conceivably be fatal—how would you go about it?"

"Pollute the water supply or something . . . eh?"

"What with?"

Thirkell suddenly looked heartbroken. "Oh! *Oh!*"

Munn nodded. "The *Goodwill* isn't stocked for that sort of thing. We're germless. Antiseptic inside and out. Have you forgotten the physical treatment they gave us before we left?"

Bronson cursed. "Never will I forget that—a hypo every hour! Antitoxins, shots, ultraviolet X rays, till my bones turned green."

"Exactly," Munn said. "We're practically germless. It's a precaution they had to take, to prevent our starting a plague on Venus."

"But we *want* to start a plague," Thirkell said plaintively.

"You couldn't even give a Venusian a head cold," Munn told him. "So that's out. What about Venusian anæsthetics? Are they as good as ours?"

"Better," the physician admitted. "Not that they need them, except for the children. Their synapses are funny. They've mastered self-hypnosis so they can block pain when it's necessary."

"Sulfa drugs?"

"I've thought of that. They've got those, too."

"My idea," Bronson broke in, "is water power. Or dams. Whenever it rains, there's a flood."

"There's good drainage, though," Munn said. "The canals take care of that."

"Now let me finish! Those fish-skinned so-and-sos have hydropower, but it isn't efficient. There's so much fast water all over the place that they build plants wherever it seems best —thousands of them—and half the time they're useless, when the rains concentrate on another district. Half of the plants are inoperable all the time. Which costs money. If they'd build dams, they'd have a steady source of power without the terrific overhead."

"It's a thought," Munn acknowledged.

Mike Soaring Eagle said, "I'll stick to my crossbreeds in the hydroponic gardens. I can raise beefsteak-mushrooms to taste of Worcestershire sauce or something. An appeal to the palate, you know—"

"Fair enough. Steve?"

Thirkell rumpled his hair. "I'll think of an angle. Don't rush me."

Munn looked at Underhill. "Any flashes of intellect, chum?"

The youngster grimaced. "Not just now. All I can think of is manipulating the stock market."

"Without money?"

"That's the trouble."

Munn nodded. "Well, my own idea is advertising. As a physicist, it's in my line."

"How?" Bronson wanted to know. "Demonstrating atom-smashing? A strong-man act?"

"Pipe down. Advertising isn't known on Venus, though commerce is. That's funny. I should think the retailers would jump at the chance."

"They've got radio commercials."

"Stylized and ritualistic. Their televisors are ready-made for splash advertising. A visual blurb . . . yeah. Trick gadgets I could make to demonstrate the products. Why not?"

"I think I'll build an X-ray machine," Thirkell said suddenly, "if you'll help me, skipper."

Munn said sure. "We've got the equipment—and the blueprints. Tomorrow we'll start. It must be pretty late."

It was, though there was no sunset on Venus. The quintet retired, to dream of full-course dinners—all but Thirkell, who dreamed he was eating a roast chicken that abruptly turned into a Venusian and began to devour him, starting at the feet. He woke up sweating and cursing, took some nembutyl, and finally slept again.

The next morning they scattered. Mike Soaring Eagle took a microscope and other gadgets to the nearest hydroponic center and went to work. He wasn't allowed to carry spores back to the *Goodwill,* but there was no objection to his experimenting in Vyring itself. He made cultures and used forced-growth vitamin complexes and hoped for the best.

Pat Bronson went to see Skottery, head of Water Power. Skottery was a tall, saturnine Venusian who knew a lot about engineering and insisted on showing Bronson the models in his office before they settled down to a talk.

"How many power stations do you have?" Bronson asked.

"Third power twelve times four dozens. Forty-two dozen in this district."

Nearly a million altogether, Bronson made it. "How many in actual operation now?" he carried on.

"About seventeen dozen."

"That means three hundred idle—twenty-five dozen, that is. Isn't the upkeep a factor?"

"Quite a factor," Skottery acknowledged. "Aside from the fact that some of those stations are now permanently inoperable. The terrain changes rapidly. Erosion, you know. We'll build one station on a gorge one year, and the next the water will be taking a different route. We build about a dozen a day. But we salvage something from the old ones, of course."

Bronson had a brainstorm. "No watershed?"

"Eh?"

The Earthman explained. Skottery shook his shoulders in negation.

"We have a different type of vegetation here. There's so much water that roots don't have to strike deeply."

"But they need soil?"

"No. The elements they need are in suspension in the water."

Bronson described how watersheds worked. "Suppose you imported Earth plants and trees and forested the mountains. And built dams to retain your water. You'd have power all the time, and you'd need only a few big stations. And they'd be permanent."

Skottery thought that over. "We have all the power we need."

"But look at the expense!"

"Our rates cover that."

"You could make more money—*difals* and *sofals*—"

"We have made exactly the same profits for three hundred years," Skottery explained. "Our net remains constant. It works perfectly. You fail to understand our economic system, I see. Since we have everything we need, there's no use making more money—not even a *fal* more."

"Your competitors—"

"We have only three, and they are satisfied with their profits."

"Suppose I interest them in my plan?"

"But you couldn't," Skottery said patiently. "They wouldn't be interested any more than I am. I'm glad you dropped in. May you be worthy of your father's name."

"Ye soulless fish!" Bronson yelled, losing his temper. "Is there no red blood in your green-skinned carcass? Does no one on this world know what fight means?" He hammered a fist into his palm. "I wouldn't be worthy of the old Seumas Bronson's name unless I took a poke at that ugly phiz of yours right now—"

Skottery had pressed a button. Two large Venusians appeared. The head of Water Power pointed to Bronson.

"Remove it," he said.

Captain Rufus Munn was in one of the telecasting studios with Bart Underhill. They were sitting beside Hakkapuy, owner of Veetsy—which might be freely translated as Wet Tingles. They were watching the telecast commercial plug for Hakkapuy's product, on the 'visor screen high on the wall.

A Venusian faded in, legs wide apart, arms akimbo. He raised one hand, six fingers spread wide.

"All men drink water. Water is good. Life needs water. Veetsy is good also. Four *fals* buys a globe of Veetsy. That is all."

He vanished. Colors rippled across the screen and music played in off-beat rhythm. Munn turned to Hakkapuy.

"That isn't advertising. You can't get customers that way."

"Well, it's traditional," Hakkapuy said weakly.

Munn opened the pack at his feet, brought out a tall glass beaker, and asked for a globe of Veetsy. It was given him, and he emptied the green fluid into his beaker. After that, he dropped in a half dozen colored balls and added a chunk of dry ice, which sank to the bottom. The balls went up and down rapidly.

"See?" Munn said. "Visual effect. The marbles are only slightly heavier than Veetsy. It's the visual equivalent of Wet Tingles. Show that on the televisor, with a good sales talk, and see how your sales curve jumps."

Hakkapuy looked interested. "I'm not sure—"

Munn dragged out a sheaf of papers and hammered at the breach in the wall. After a time a fat Venusian came in and said, "May you be worthy of your ancestors' names." Hakkapuy introduced him as Lorish.

"I thought Lorish had better see this. Would you mind going over it again?"

"Sure," Munn said. "Now the principle of display windows—"

When he had finished, Hakkapuy looked at Lorish, who shook his shoulders slowly.

"No," he said.

Hakkapuy blew out his lips. "It would sell more Veetsy."

"And upset the economy charts," Lorish said. "No."

Munn glared at him. "Why not? Hakkapuy owns Veetsy, doesn't he? Who are you, anyhow—a censor?"

"I represent the advertisers' *tarkomar,*" Lorish explained. "You see, advertising on Venus is strongly ritual. It is never changed. Why should it be? If we let Hakkapuy use your ideas, it would be unfair to other makers of soft drinks."

"They could do the same thing," Munn pointed out.

"A pyramiding competition leading to ultimate collapse. Hakkapuy makes enough money. Don't you, Hakkapuy?"

"I suppose so."

"Are you questioning the motives of the *tarkomars?*"

Hakkapuy gulped. "No," he said hastily. "No, no, no! You're perfectly right."

Lorish looked at him. "Very well. As for you, Earthman, you had better not waste your time pursuing this—scheme—further."

Munn reddened. "Are you threatening me?"

"Of course not. I simply mean that no advertiser could

use your idea without consulting my *tarkomar,* and we would veto it."

"Sure," Munn said. "O.K. Come on, Bert. Let's get out of here."

They departed, to stroll along a canal bank and confer. Underhill was thoughtful.

"The *tarkomars* have held the balance of power for a long time, it looks like. They want things to stay as they are. That's obvious."

Munn growled.

Underhill went on, "We'd have to upset the whole apple cart to get anywhere. There's one thing in our favor, though."

"What?"

"The laws."

"How do you figure that out?" Munn asked. "They're all against us."

"So far—yes. But they're traditionally rigid and unswerving. A decision made three hundred years ago can't be changed except by a long court process. If we can find a loophole in those laws, they can't touch us."

"All right, find the loophole," Munn said grumpily. "I'm going back to the ship and help Steve build an X-ray machine."

"I think I'll go down to the stock exchange and snoop," Underhill said. "It's just possible—"

After a week, the X-ray device was finished. Munn and Thirkell looked through the Vyring law records and found they were permitted to sell a self-created device without belonging to a *tarkomar,* provided they obeyed certain trivial restrictions. Leaflets were printed and strewed around the city, and the Venusians came to watch Munn and Thirkell demonstrating the merits of Roentgen rays.

Mike Soaring Eagle knocked off work for the day and recklessly smoked a dozen cigarettes from his scanty store, burning with dull fury as he puffed. He had run into trouble with his hydroponic cultures.

"Crazy!" he told Bronson. "Luther Burbank would have gone nuts—the way I'm going. How the devil can I cross-pollenate those ambiguous specimens of Venusian flora?"

"Well, it doesn't seem exactly fair," Bronson consoled. "Eighteen sexes, eh?"

"Eighteen so far. And four varieties that apparently haven't any sex at all. How can you crossbreed those perverted mushrooms? You'd have to exhibit the result in a side show."

"You're getting nowhere?"

"Oh, I'm getting places," Mike Soaring Eagle said bitterly. "I'm getting all sorts of results. The trouble is nothing stays constant. I get a rum-flavored fungus one day, and it doesn't breed true—its spores turn into something that tastes like turpentine. So you see."

Bronson looked sympathetic. "Can't you swipe some grub when they're not looking? That way the job wouldn't be a complete washout."

"They search me," the Navaho said.

"The dirty skunks," Bronson yelped. "What do they think we are? Crooks?"

"Mph. Something's going on outside. Let's take a look."

They went out of the *Goodwill* to find Munn arguing passionately with Jorust, who had come in person to examine the X-ray machine. A crowd of Venusians watched avidly. Munn's face was crimson.

"I looked it up," he was saying. "You can't stop me this time, Jorust. It's perfectly legal to build a machine and sell it outside the city limits."

"Certainly," Jorust said. "I'm not complaining about that."

"Well? We're not breaking any law."

The woman beckoned, and a fat Venusian waddled forward. "Patent three gross squared fourteen two dozen, issued to Metzi-Stang of Mylosh year fourth power twelve, subject sensitized plates."

"What's that?" Munn asked.

"It's a patent," Jorust told him. "It was issued some time

ago to a Venusian inventor named Metzi-Stang. A *tarkomar* bought and supressed the process, but it's still illegal to infringe on it."

"You mean somebody's already invented an X-ray machine on Venus?"

"No. Merely sensitized film. But that's part of your device, so you can't sell it."

Thirkell pushed forward. "I don't need film—"

The fat Venusian said, "Vibrationary patent three gross two dozen and seven—"

"What now?" Munn broke in.

Jorust smiled. "Machines employing vibration must not infringe on that patent."

"This is an X-ray machine," Thirkell snapped.

"Light is vibration," Jorust told him. "You can't sell it without buying permission from the *tarkomar* now owning that patent. It should cost—let's see—five thousand *sofals* or so."

Thirkell turned abruptly and went into the ship, where he mixed a whiskey-and-soda and thought wistfully about diphtheria germs. After a time the others appeared, looking disconsolate.

"Can she do it?" Thirkell asked.

Munn nodded. "She can do it, chum. She's done it."

"We're not infringing on their patents."

"We're not on Earth. The patent laws here are so wide that if a man invents a gun, nobody else can make telescopic sights. We're rooked again."

Underhill said, "It's the *tarkomars* again. When they see a new process or invention that might mean change, they buy it up and suppress it. I can't think of any gadget we could make that wouldn't be an infringement on some Venusian patent or other."

"They stay within the law," Munn pointed out. "*Their* law. So we can't even challenge them. As long as we're on Venus, we're subject to their jurisprudence."

"The beans are getting low," Thirkell said morosely.

"Everything is," the captain told him. "Any ideas, somebody?"

There was silence. Presently Underhill took out a globe of Veetsy and put it on the table.

"Where'd you get that?" Bronson asked. "It costs four *fals*."

"It's empty," Underhill said. "I found it in an ash can. I've been investigating glassite—the stuff they use for things like this."

"What about it?"

"I found out how they make it. It's a difficult, expensive process. It's no better than our flexiglass, and a lot harder to make. If we had a flexiglass factory here—"

"Well?"

"The bottom would drop out of Amalgamated Glassite."

"I don't get it," Bronson said. "So what?"

"Ever heard of a whispering campaign?" Underhill asked. "My father wangled many an election that way, the old devil. Suppose we passed the word around that there was a new process for making a cheaper, better substitute for glassite? Wouldn't Amalgamated stock drop?"

"Possibly," Munn said.

"We could clean up."

"What with?"

"Oh." Underhill was silent. "It takes money to make money."

"Always."

"I wonder. Here's another idea. Venus is on the iron standard. Iron's cheap on Earth. Suppose we talked about bringing in iron here—strewing it broadcast. There'd be a panic, wouldn't there?"

"Not without some iron to strew around," Munn said. "Counter-propaganda would be telecast; we couldn't compete with it. Our whispering campaign would be squashed before we got it started. The Venusian government—the *tarkomars*

—would simply deny that Earth had unlimited iron supplies. We wouldn't profit, anyway."

"There must be some angle," Underhill scowled. "There's got to be. Let's see. What's the basis of the Venusian system?"

"No competition," Mike Soaring Eagle said. "Everybody has all he wants."

"Maybe. At the top. But the competitive instinct is too strong to be suppressed like that. I'll bet plenty of Venusians would like to make a few extra *fals.*"

"Where does that get us?" Munn wanted to know.

"The way my father did it. . . . Hm-m-m. He manipulated, pulled the wires, made people come to him. What's the weak spot in Venusian economy?"

Munn hesitated. "Nothing we can strike at—we're too handicapped."

Underhill shut his eyes. "The basis of an economic and social system is—what?"

"Money," Bronson said.

"No. Earth's on the radium standard. Years ago it was gold or silver. Venus is on iron. And there's the barter system, too. Money's a variable."

"Money represents natural resources—" Thirkell began.

"Man-hours," Munn put in quietly.

Underhill jumped. "That's it! Of course—man-hours! That's the constant. The amount of production a man can turn out in an hour represents an arbitrary constant—two dollars, a dozen *difals,* or whatever it is. That's the base for any economic set-up. And it's the base we've got to hit. The ancestor worship, the power of the *tarkomars*—they're superficial really. Once the basic system is challenged, they'll go down."

"I don't see where it gets us," Thirkell said.

"Make the man-hours variable," Underhill explained. "Once we do that, anything can happen."

"Something had better happen," Bronson said, "and quick. We've little food left."

"Shut up," Munn said. "I think the kid's got the right angle. Alter the man-hour constant, eh? How can we do that? Specialized training? Train a Venusian to turn out twice as much stuff in the same period of time? Skilled labor?"

"They've got skilled labor," Underhill said. "If we could make 'em work faster, or increase their stamina—"

"Benzedrine plus," Thirkell interrupted. "With enough caffeine, vitamin complex, and riboflavin—I could whip up a speeder-upper, all right."

Munn nodded slowly. "Pills, not shots. If this works out, we'll have to do it undercover after a while."

"What the devil will it get us to make the Venusians work faster?" Bronson asked.

Underhill snapped his fingers. "Don't you see? Venus is ultraconservative. The economic system is frozen static. It isn't adapted to change. There'll be hell popping!"

Munn said, "We'll need advertising to arouse public interest first of all. A practical demonstration." He looked around the table, his gaze settling on Mike Soaring Eagle. "Looks like you're elected, Redskin. You've more stamina than any of us, according to the tests we took back on Earth."

"All right," the Navaho said. "What do I do?"

"Work!" Underhill told him. "Work till you drop!"

It began early the next morning in the main plaza of Vyring. Munn had checked up carefully, determined to make sure nothing would go wrong, and had learned that a recreation building was to be constructed on the site of the plaza. "Work won't start for several weeks," Jorust said. "Why?"

"We want to dig a hole there," Munn said. "Is it legal?"

The Venusian smiled. "Why, of course. That's public domain—until the contractors begin. But a demonstration of your muscular prowess won't help you, I'm afraid."

"Eh?"

"I'm not a fool. You're trying to land a job. You hope to

do that by advertising your abilities. But why do it in just this way? Anybody can dig a hole. It isn't specialized."

Munn grunted. If Jorust wanted to jump at that conclusion, swell. He said, "It pays to advertise. Put a steam shovel to work, back on Earth, and a crowd will gather to watch it. We don't have a steam shovel, but—"

"Well, whatever you like. Legally you're within your rights. Nevertheless you can't hold a job without joining a *tarkomar.*"

"Sometimes I think your planet would be a lot better off without the *tarkomars,*" Munn said bluntly.

Jorust moved her shoulders. "Between ourselves, I have often thought so. I am merely an administrator, however. I have no real power. I do what I'm told to do. If I were permitted, I would be glad to lend you the money you need—"

"What?" Munn looked at her. "I thought—"

The woman froze. "It is not permitted. Tradition is not always wisdom, but I can do nothing about it. To defy the *tarkomars* is unthinkable and useless. I am sorry."

Munn felt a little better after that, somehow. The Venusians weren't all enemies. The all-powerful *tarkomars,* jealous of their power, fanatically desirous of preserving the *status quo,* were responsible for this mess.

When he got back to the plaza, the others were waiting. Bronson had rigged up a scoreboard, in phonetic Venusian, and had laid out mattock, pick, shovel, wheelbarrow and boards for the Navaho, who stood, a brawny, red-bronze figure, stripped to the waist in the cool wind. A few canalboats had stopped to watch.

Munn looked at his watch. "O.K., Redskin. Let's go. Steve can start—"

Underhill began to beat a drum. Bronson put figures on the scoreboard: 4:03:00, Venusian Vyring Time. Thirkell went to a nearby camp table, littered with bottles and medical equipment, shook from a vial one of the stimulant pills he had con-

cocted, and gave it to Mike Soaring Eagle. The Indian ate it, heaved up the mattock, and went to work.

That was all.

A man digging a hole. Just why the spectacle should be so fascinating no one has ever figured out. The principle remains the same, whether it's a steam shovel scooping out half a ton of earth at a bite, or a sweating, stocky Navaho wielding shovel and pick. The boats grew thicker.

Mike Soaring Eagle kept working. An hour passed. Another. There were regular, brief rest periods, and Mike kept rotating his tools, to get all his muscles into play. After breaking earth for a while with the mattock, he would shovel it into the wheelbarrow, roll his burden up a plank and dump it on an ever-growing pile some distance away. Three hours. Four. Mike knocked off for a brief lunch. Bronson kept track of the time on his scoreboard.

Thirkell gave the Navaho another pill. "How're you doing?"

"Fine. I'm tough enough."

"I know, but these stimulants—they'll help."

Underhill was at a typewriter. He had already ground out a tremendous lot of copy, for he had been working since Mike Soaring Eagle started. Bronson had discovered a long-forgotten talent and was juggling makeshift Indian clubs and colored balls. He'd been keeping that up for quite a while, too.

Captain Rufus Munn was working a sewing machine. He didn't especially like the task, but it was precision work, and therefore helpful to the plan. All the party except Thirkell was doing something, and the physician was busy administering pills and trying to look like an alchemist.

Occasionally he visited Munn and Underhill, collected stacks of paper and carefully sewn scraps of cloth, and deposited them in various boxes near the canal, labeled, "Take One." On the cloth a legend was machine-embroidered in Venusian: "A Souvenir from Earth." The crowds thickened.

The Earthmen worked on. Bronson kept juggling, with pauses for refreshment. Eventually he experimented with coin and card tricks. Mike Soaring Eagle kept digging. Munn sewed. Underhill continued to type—and the Venusians read what his flying fingers turned out.

"Free! Free! Free!" the leaflets said. "Souvenir pillowcase covers from Earth! A free show! Watch the Earthmen demonstrate stamina, dexterity and precision in four separate ways. How long can they keep it up? With the aid of POWER PILLS—indefinitely! Their output is doubled and their precision increased by POWER PILLS—they pep you up! A medical product of Earth that can make any man worth twice his weight in *sofals!*"

It went on like that. The old army game—with variations. The Venusians couldn't resist. Word got around. The mob thickened. How long could the Earthmen keep up the pace?

They kept it up. Thirkell's stimulant pills—as well as the complex shots he had given his companions that morning—seemed to be working. Mike Soaring Eagle dug like a beaver. Sweat poured from his shining red-bronze torso. He drank prodigiously and ate salt tablets.

Munn kept sewing, without missing a stitch. He knew that his products were being scanned closely for signs of sloppy workmanship. Bronson kept juggling and doing coin tricks, never missing. Underhill typed with aching fingers.

Five hours. Six hours. Even with the rest periods, it was grueling. They had brought food from the *Goodwill,* but it wasn't too palatable. Still, Thirkell had selected it carefully for caloric.

Seven hours. Eight hours. The crowds made the canals impassable. A policeman came along and argued with Thirkell, who told him to see Jorust. Jorust must have put a flea in his ear, for he came back to watch, but not to interfere.

Nine hours. *Ten hours.* Ten hours of Herculean effort. The men were exhausted—but they kept going.

They had made their point by then, though, for a few Venusians approached Thirkell and inquired about the Power Pills. What were they? Did they really make you work faster? How could they buy the—

The policeman appeared to stand beside Thirkell. "I've a message from the medical *tarkomar,*" he announced. "If you try to sell any of those things, you go to jail."

"Wouldn't think of it," Thirkell said. "We're giving away free samples. Here, buddy." He dug into a sack and tossed the nearest Venusian a Power Pill. "Two days' work in that instead of your usual one. Come back for more tomorrow. Want one, pal? Here. You, too. Catch."

"Wait a minute—" the policeman said.

"Go get a warrant," Thirkell told him. "There's no law against making presents."

Jorust appeared with a burly, intolerant-looking Venusian. She introduced the latter as head of the Vyring *tarkomars.*

"And I'm here to tell you to stop this," the Venusian said.

Thirkell knew what to say. His companions kept on with their work, but he felt them watching and listening.

"What rule do you invoke?"

"Why . . . why, peddling."

"I'm not selling anything. This is public domain; we're putting on a free show."

"Those . . . ah . . . Power Pills—"

"Free gifts," Thirkell said. "Listen, pal. When we gave all our food to you Venusian crooks, did you squawk? No, you took it. And then clamped down. When we asked for our grub back, you just told us that we had no legal recourse; possession is nine points of the law, and we had a perfect right to make free gifts. That's what we're doing now—giving presents. So what?"

Jorust's eyes were twinkling, but she hooded them swiftly. "I fear he speaks the truth. The law protects him. It is no great harm."

Thirkell, watching her, wondered. Had Jorust guessed

the right answer? Was she on their side? The *tarkomar* leader turned dark green, hesitated, swung on his heel, and went away. Jorust gave the Earthmen a long, enigmatic look, moved her shoulders, and followed.

"I'm still stiff," Mike Soaring Eagle said a week later in the *Goodwill*. "Hungry, too. When do we get grub?"

Thirkell, at the valve, handed out a Power Pill to a Venusian and came back rubbing his hands and grinning. "Wait. Just wait. What's going on, skipper?"

Munn nodded toward Underhill. "Ask the kid. He got back from Vyring a few minutes ago."

Underhill chuckled. "There was hell popping. All in a week, too. We've certainly struck at the economic base. Every Venusian who labors on a piecework basis wants our pills, so he can speed up his production and make more *fals*. It's the competitive instinct—which is universal."

"Well?" Bronson asked. "How do the lizard-faced big shots like that?"

"They don't like it. It's hit the economic set-up they've had for centuries. Till now, one Venusian would make exactly ten *sofals* a week—say—by turning out five thousand bottle caps. With the pills Steve made up, he's turning out eight or ten thousand and making correspondingly more dough. The guy at the next bench says what the hell, and comes to us for a Power Pill for himself. Thus it goes. And the lovely part is that not all the labor is on piecework basis. It can't be. You need tangibles for piecework. Running a weather machine has got to be measured by time—not by how many raindrops you make in a day."

Munn nodded. "Jealousy, you mean?"

Underhill said, "Well, look. A weather-machine operator has been making ten *sofals* a week, the same as a bottle capper on piecework. Now the bottle capper's making twenty *sofals*. The weather-machine man doesn't see the point. He's willing to take Power Pills, too, but that won't step up his production.

He asks for a raise. If he gets it, the economy is upset even more. If he doesn't, other weather-machine operators get together with him and figure it's unfair discrimination. They get mad at the *tarkomars*. They strike!"

Mike Soaring Eagle said, "The *tarkomars* have forbidden work to any Venusian taking Power Pills."

"And still the Venusians ask us for Power Pills. So what? How can you prove a man's been swallowing them? His production steps up, sure, but the *tarkomars* can't clamp down on everybody with a good turnout. They tried that, and a lot of guys who never tried the Power Pills got mad. They were fast workers, that was all."

"The demonstration we put on was a good idea," Thirkell said. "It was convincing. I've had to cut down the strength of the pills—we're running low—but the power of suggestion helps us."

Underhill grinned. "So the base—the man-hour unit—had gone cockeyed. One little monkey wrench, thrown where it'll do the most good. It's spreading, too. Not only Vyring. The news is going all over Venus, and the workers in the other cities are asking why half of Vyring's laborers should get better pay. That's where the equal standard of exchange helps us—one monetary system all over Venus. Nothing has ever been off par here for centuries. Now—"

Munn said, "Now the system's toppling. It's a natural fault in a perfectly integrated, rigid set-up. For want of a nail the *tarkomars* are losing their grip. They've forgotten how to adjust."

"It'll spread," Underhill said confidently. "It'll spread. Steve, here comes another customer."

Underhill was wrong. Jorust and the Vyring *tarkomar* leader came in. "May you be worthy of your ancestors' names," Munn said politely. "Drag up a chair and have a drink. We've still got a few bulbs of beer left."

Jorust obeyed, but the Venusian rocked on his feet and

glowered. The woman said, "Malsi is distressed. These Power Pills are causing trouble."

"I don't know why," Munn said. "They increase production, don't they?"

Malsi grimaced. "This is a trick! A stratagem! You are abusing our hospitality!"

"What hospitality?" Bronson wanted to know.

"You threatened the system," Malsi plunged on doggedly. "On Venus there is no change. There must be none."

"Why not?" Underhill asked. "There's only one real reason, and you know it. Any advances might upset the *tarkomars* —threaten the power they hold. You racketeers have had the whip hand for centuries. You've suppressed inventions, kept Venus in a backwater, tried to drive initiative out of the race, just so you could stay on top. It can't be done. Changes happen; they always do. If we hadn't come, there'd have been an internal explosion eventually."

Malsi glared at him. "You will stop making these Power Pills."

"Point of law," Thirkell said softly. "Show precedent."

Jorust said, "The right of free gift is one of the oldest on Venus. That law could be changed, Malsi, but I don't think the people would like it."

Munn grinned. "No. They wouldn't. That would be the tip-off. Venusians have learned it's possible to make more money. Take that chance away from them, and the *tarkomars* won't be the benevolent rulers any more."

Malsi turned darker green. "We have power—"

"Jorust, you're an administrator. Are we protected by your laws?" Underhill asked.

She moved her shoulders. "Yes, you are. The laws are sacrosanct. Perhaps because they have always been designed to protect the *tarkomars.*"

Malsi swung toward her. "Are you siding with the Earthmen?"

"Why, of course not, Malsi. I'm merely upholding the law, according to my oath of office. Without prejudice—that's it, isn't it?"

Munn said, "We'll stop making the Power Pills if you like, but I warn you that it's only a respite. You can't halt progress."

Malsi seemed unconvinced. "You'll stop?"

"Sure. If you pay us."

"We cannot pay you," Malsi said stubbornly. "You belong to no *tarkomar*. It would be illegal."

Jorust murmured, "You might give them a free gift of—say—ten thousand *sofals*."

"*Ten thousand!*" Malsi yelped. "Ridiculous!"

"So it is," Underhill said. "Fifty thousand is more like it. We can live well for a year on that."

"No."

A Venusian came to the valve, peeped in, and said: "I made twice as many *difals* today. May I have another Power Pill?" He saw Malsi and vanished with a small shriek.

Munn shrugged. "Suit yourself. Pay up, or we go on handing out Power Pills—and you'll have to adjust a rigid social economy. I don't think you can do it."

Jorust touched Malsi's arm. "There is no other way."

"I—" The Venusian by now was almost black with impotent rage. "All right," he capitulated, spitting the words between his teeth. "I won't forget this, Jorust."

"But I must administer the laws," the woman said. "Why, Malsi! The rule of the *tarkomars* has always been unswerving honesty."

Malsi didn't answer. He scribbled a credit check for fifty thousand *sofals*, validated it, and gave the tag to Munn. After that he sent a parting glare around the cabin and stamped out.

"Well!" Bronson said. "Fifty grand! Tonight we eat!"

"May you be worthy of your fathers' names," Jorust murmured. At the valve she turned. "I'm afraid you've upset Malsi."

"Too bad," Munn said hypocritically.

Jorust moved her shoulders slightly. "Yes. You've upset Malsi. And Malsi represents the *tarkomars*—"

"What can he do about it?" Underhill asked.

"Nothing. The laws won't let him. But—it's nice to know the *tarkomars* aren't infallible. I think the word will get around."

Jorust winked gravely at Munn and departed, looking as innocent as a cat, and as potentially dangerous.

"Well!" Munn said. "What does that mean? The end of the *tarkomars'* rule, maybe?"

"Maybe," Bronson said. "I don't give a damn. I'm hungry and I want a beefsteak-mushroom. Where can we cash a check for fifty grand?"

Harry Walton

SCHEDULE

As interplanetary commerce brought fierce competition, time became an enemy which could break a man.

IN THE MEDUSA'S shadowy forecabin, lumintubes flickered as the ship staggered under the first thrust of the hyperaccelerators. Then she was over the hump and the tubes burned brighter than they yet had, while energy surged from every atom of the ship, its cargo animate and inanimate, into the Carlson accumulators. Four men looked at one another, tensely expectant as of something certain to come, something familiar yet always to be awaited with trepidation. Deep in the metallic cavern that was the ship, machinery screamed suddenly on a new, rising note.

With the first sharp wail came the familiar sensation of falling—pure illusion yet no less convincing for that. The *Medusa* seemed to be sliding down a precipitous slope at gathering speed. The feeling would last for hours, but its coming eased that other, psychological tension that preceded it.

The subthird spat cheerfully and unzipped his fatigue suit. "That's that until next time, save the Carlsons! I wonder why I stay on this run anyway."

Since the other three couldn't answer that question for themselves, none tried to answer it for the subthird. But it seemed to make the second oiler even more thoughtful than usual, for he took the pipe out of his mouth. Seeing that he was going to talk, even the subthird paused in the act of rolling into his bunk.

"Save the Carlsons!" muttered the oiler. "They'll hold up

this trip and a hundred more. You can spend a lifetime on these tubs and never run into anything tougher than a hard-boiled second. Dangerous? You should have been a wildcatter back in the old days. There was the run to Rhea— If you want to kill part of the off watch, I'll tell the yarn."

"Aye, tell it," said the subthird for all of them. The second oiler hadn't always been a forecabin hand, and sometimes his yarns were worth hearing.

Deliberately he knocked the ashes from his pipe into the refuse well. The soft rustle of air through the ventilator grille grew out of the stillness, only to fade again before the oiler's voice.

"Nowadays you don't hear much about Rhea. The main liners still run to Titan, but there's not enough beyond Saturn to keep traffic lively out there, and the Carlsons make it easier to get to Antares in a subship than to reach Uranus in a jet ship. Even Titan's just a tourist stop today, and Rhea's pointed out to the rubbernecks as a moon to steer clear of. The guides tell 'em what would happen to 'em six hours after grounding there, and they enjoy a few shivers before going back to their bridge games.

"That's all Rhea means now. Bismullah's a cargo you never hear about, and Interplan Council sends the Rheans all the salt and sodium they want by a B-9 automatic. Which is cheaper and lots safer than sending a crew ship.

"But in the old days it was different. Titan itself was a pretty tough place for a youngster green from navigation school, like Jimmy Rodgers. It was tough enough without the news he had to hear when he landed from the big Blue Star ship at Titan dock—"

"So that's it, son," Matthews was saying. "And I never hated to tell anything more than this. Your dad was a fine, honest man and a good navigator, God rest his soul."

Jimmy Rodgers swallowed dryly. The bustling scene all around him, the hurrying foot traffic of a great space dock, the

fussy activity of automatic unloaders, all seemed suddenly as unreal and absurd as the news Matthews had brought him—alive, moving, noisy, but not actual, like a stereograph sound film. It couldn't be true that his father was dead. Things couldn't happen that way, after all the years of planning toward this day.

But in a coldly sober compartment of his mind he knew that it was so. Men didn't live forever, not even men like Ben Rodgers, the father he hadn't seen in seven years. Funny how much the same he felt as on the day he'd left Titan, a kid of sixteen, alone and awkward and self-conscious in his new whipcords and plastoid cap. But most of all alone. Now he had master's papers and a certificate of competency but felt just as alone. Bitterly he wished he'd never left Titan. To come back to this!

Matthews was studying him anxiously. Now he saluted —the same offhand yet respectful gesture he'd used toward the elder Rodgers. "Beggin' your pardon, son, we can't stay here. Would ye . . . would ye let me stand you to a drink?"

Rodgers nodded, followed the grizzled engine man through the ordered confusion of the landing stage, down a long plank walk, and into a dark little tavern. Afterward he couldn't remember the way they had come.

A glass was set before him. He swallowed its stinging, tasteless contents while his mind remorselessly rehearsed the news. The funeral had been three days ago—he'd missed it by that much. He wished he were sixteen again, and just feeling the hard clasp of his father's hand in that good-by seven years ago.

Matthews was blinking at him across the table. The old spaceman leaned forward. "Guess I know how ye feel, son. He was my friend. But now we've got to get on course—it's what he'd ask of ye if he were here. And there's not much time."

The words penetrated a haze of self-pity. He'd been acting, Rodgers saw, exactly as that kid of sixteen would have. Time he took himself in hand.

"Sorry. Of course I'll carry on. How long since your last voyage?"

"Too long, son. I've had the devil's time with the Interplan Council. The beacon isn't good for much longer. And I hadn't authority to take cargo without ye, even if I'd had a navigator."

"We'll load at once. I'll see the council right away, too. My papers are in order. Are the beacon batteries aboard?"

Matthews swallowed visibly, his gnarled fingers tracing an intricate scroll pattern on the dirty tablecloth. "No, son, they ain't. Fact is, I've got to tell you some things I'd rather not. Ye got here just in time, but it's not all clear landings. First off—"

"Blast me if it isn't young Rodgers," roared a bull-like voice as a bulky figure loomed over the table. "Remember me—Nappy Ames? Say, I'm sorry about your dad. Swell chap. One of the best."

The man pulled a chair out, sat down so hard it creaked in protest. He was fat, but hard beneath the fat, his face-space tanned, the eyes full of a shrewdness that belied his blustering good humor. Rodgers remembered him vaguely as a wildcatter who hauled ore from Japetus, outermost moon but one of Saturn. His father had written once that Ames had offered to buy a share in the *Stardust,* although the man already had a ship of his own.

"You were a kid when I saw you last," the man bellowed amiably. "Just a raw kid. Now you're all set, hey? A real navigator. Going to show us old chaps a few things." He winked broadly at Matthews, who made no response. "Well, I hope you do. We can stand it. Competition's the life of this racket, I always say."

Rodgers forced himself to look at the other squarely. He disliked what he saw, resented Ames' manner, the offhand reference to his father's death.

"I don't suppose I'll add to your competition," he told Ames. "The *Stardust* is sticking to the Rhea run. So far as I'm concerned, the other moons are all yours."

The big man's eyebrows shot up in exaggerated surprise. He turned to Matthews. "Mean to tell me you haven't explained things?"

"Haven't had the chance, with you buttin' in," Matthews growled. "If you'll get out, maybe I can make 'em clear."

"Sure. Sure. No harm meant." The big man heaved himself up off the chair. "Sorry, Rodgers, to have butted in too soon. Matthews will tell you my proposition. Better think it over."

He walked off with the mincing gait of a spaceman accustomed to low gravity. Rodgers waited until he was out of earshot, then turned to Matthews, who spread his broad hands flat on the tablecloth in a gesture of finality.

"O.K., here it is. The council isn't transferring the beacon run to you just like that. Ames has bid in for it. Would have had it by now if you weren't your dad's son. But you'll have to race Ames for it."

"Race?"

"That's it. After all, son, you're new in this game, even though your dad pioneered on Rhea. The council doesn't know you. And that beacon's got to be serviced regular. They know Ames can deliver. But they agreed to wait until you got here to take over the *Stardust,* and to let you and Ames start neck and neck. First one to reach Rhea and flash a code signal from the beacon gets the contract."

"Who else is bidding?"

"Nobody. Them other wildcatters wouldn't land on Rhea for all the bismullah the Rheans can dig up. Takes nerve to ground on a moon you can't stay healthy on more than six hours. Too much can go wrong. Three of Ames' men quit, but he's got a legal crew left—although I don't think there's another spaceman this side of Mars will sign up for the run. Of course, Ames has plenty of guts—he'd go to Hades and back if there was profit in it. Only reason he never tried to butt in before was that your dad had the beacon contract, which paid eighty percent of the expenses and would make it plenty tough for any-

body to undersell him on the bismullah end. Which Ames figures will work two ways—if he can get that contract."

"What's that proposition he talked about?" asked Rodgers.

Matthews cracked his knuckles. "Didn't figure you'd be interested in that, son. But maybe you will be, after you've applied for cargo. Your dad could get credit any trip for salt and sodium to trade the Rheans. Well, I asked for cargo, but they said no. Trouble is, son, they don't know ye or what kind of navigator you are. You'll have to put up the *Stardust* as security for cargo."

"What's Ames' proposition?" asked Rodgers again.

"He'll buy the *Stardust,*" Matthews told him, "for eighty thousand credits. And he has the gall to offer to let you captain her on the Japetus run—hauling fertilizer."

Titan was dwindling behind. Ahead lay the glory of ringed Saturn, a fantasy of the heavens, pale-yellow in color, its surface just now leprous with white spots that betokened a storm in its atmosphere. Against the brilliant disk Rhea was a black dot.

A smell of hot condenser oil and jet fuel permeated the *Stardust.* The engines were working hard, but they were giving Ames a good run for his money. The 'scope still showed his *Comet* abreast of the *Stardust* about one hundred miles away. The ships were too closely matched for either to win much advantage on this long leg of the journey. Closer in to Rhea, when landing approaches had to be plotted, better spacemanship would count. Rodgers had worked out that part of the trip with special care.

The aft bulkhead door creaked open, letting the roar of the engines well out from the after part of the ship. Matthews entered the navigation cubby, his face troubled.

"We're pushing her hard, son," he complained. "The turbos are heatin'. They won't take any overload on deceleratin'."

"Won't have to. We'll cut in the gravity screens in reverse." Rodgers jabbed a thumb portwise. "Ames is shoving his ship,

too. And if we don't win, there won't be any *Stardust* left, so far as we're concerned."

"Bad as that, son?"

"It's a one-shot proposition, as you expected. I got cargo by putting the ship up as security. If we don't move it, I'll have to take a market loss, and there's nothing to pay it with. Dad spent all his ready cash putting me through school, and was blasting on pretty thin jets financially. But we've got the cargo and the beacon batteries and a coded identification tape. All we have to do now is beat Ames."

Matthews grunted and vanished into the smelly depths of the engine room. For the fifth time Rodgers checked course and speed.

The council, he pondered grimly, was getting a good race and a long one. Rhea and Titan had been three days' journey apart when the two ships started. The smaller moon's baleful disk was growing ever larger now against the huge one of Saturn. Rhea, second of the planet's two alien moons, beautiful at this distance, treacherous, deadly. Rodgers was proud that his father had been first deliberately to risk a landing on the green moon, first to establish an understanding with its non-human inhabitants, even though he had had to leave a few hours later, in obedience to the grim warning of his radiation detectors.

For Rhea was a moon of death to mankind. The other moons—Titan, Japetus, Thetys, Dione, were normal. A ship caught in Saturn's gravitational net might, with good fortune, land on any of them and await rescue. But Rhea in such a case offered safety with one hand and death with the other. Some theories had it that the green moon was a wanderer from Outside captured by Saturn, whereas the other satellites were born of the planet's own vast bulk.

Rhea was dangerously radioactive. Far harder than X-rays, more penetrating even than cosmic rays, its emanations disintegrated brain tissue after a few hours' exposure. No personal

armor, no ship's hull, offered safety from them. Before the beacon was set up, more than one ship had made its last landing on Rhea to become the sarcophagus of its crew. Biological experiments had since set the maximum safe exposure at six hours. Successive exposures had to be at least two hundred thirty hours apart to avoid a cumulative effect. Hence the beacon to warn ships away from this treacherous haven. Hence also the periodic inspection and servicing of the beacon, at a safe interval of two hundred forty hours.

A sudden hooting of the collision indicator roused Rodgers from these thoughts. Three blasts, followed by four shorter ones—the universal interplanetary danger signal. It was followed by the code signal for Rhea. Few spacemen would continue on the course the *Stardust* now held.

He took a reading on the intensity meter, checking its findings against his navigation figures. Twelve hours from Rhea. On the astrogator he deftly set up the co-ordinates for the first landing crew. The machine rumbled, transmitted a series of signals to the course comparator, and directional jets stuttered spasmodically as they forced the *Stardust* on a new tack. Hardly had she come about when, against the rim of blackness beyond Saturn's disk, Rodgers saw the blue-white blasts of the *Comet's* jets turning her also. He grinned confidently. It would take more than follow-the-leader tactics to beat the *Stardust* down.

A sudden hubbub from beyond the engine room bulkhead brought him up tense. Along with Matthews' voice, shrill above the heavy step of the spaceman's boots on the engine-deck catwalk, rose another and strange voice. The door was flung open. A slight, begrimed figure tumbled in after it. Matthews followed, his broad red face clouded with anger.

"Beggin' your pardon, sir. A bit of trash I found in the after tank compartment." His use of formal address, a bit of sheer showmanship for the benefit of the shivering stowaway, made Rodgers smile inwardly. "Shall I clap him in irons, sir?"

"Presently, Mr. Matthews." Rodgers turned to the man,

and at once felt something of Matthews' contempt. The fellow was no spaceman, certainly. A ragged beard, bleary eyes, spindly legs that trembled under every thrust of the ship's directional jets, stamped him as one of those human derelicts common to every port.

"No irons, mister, please. I didn't mean no harm," the man whined. "Just a bit of cop trouble, y'know. Titan was getting too hot for me, so a friend, he tells me how to get away for a bit. I didn't mean no harm, honest, guv'nor."

"You know the rule about stowaways?" asked Rodgers. "Irons in the brig, or the toughest work aboard ship, port to port. Take your pick."

"Oh, I'll work, cap'n. Anythin' you say, mister. I ain't afraid of work. It's drink did me in, nothin' else." The man's manner underwent a subtle change, now that his fate was settled. "You wouldn't have just a wee drop about, would you, admiral?"

Matthews clouted him on the back so that he almost fell on his face. "Get below, ye worthless scum," roared the engine man, "and be thankful if we don't leave ye to rot on Rhea. Drink indeed it is!"

In the very act of getting to his feet the stowaway froze, while the color seemed to drain out of his wizened face. "Rhea? Heaven forbid, we ain't goin' to Rhea?" he croaked.

"And does your ticket say otherwise?" asked Matthews. "Did ye maybe get on the wrong ship by mistake? Maybe it's a luxury liner to Terra ye meant to board all along?"

"No!" yelped the man, plainly terrified. "You ain't for Rhea? Not Rhea, mister? He never said you was for Rhea. Japetus, he said. It ain't too late to head for Japetus, is it?"

"No, sir," snorted Matthews. "We'll change course immediately, now you've ordered it. Get below!"

Rodgers lifted a hand. "Hold a moment, Mr. Matthews. I'd like to know where this man got his misinformation. Surely every soul at Titan port knows the *Stardust* and her run. Who told you Japetus?"

"This friend—we call him Charlie—who told me how to ditch the cops," panted the man. "I ain't long on Titan—I'm from Inside. He wasn't wrong, was he, commodore? You're for Japetus, sure?"

"Rhea," said Rodgers. "Course is set for her now."

The stowaway's face went a trifle whiter under parchment-yellow skin. "He didn't tell me that. He lied, the dirty—"

"What have you done?" snapped Rodgers.

"I don't get you, commodore."

"What were you put on this ship to do? Talk fast. It'll soon be too late to alter course."

The man wilted. "You can't ground on Rhea. Not for your life you can't, guv'nor. It's suicide, that's what."

"Mr. Matthews! We'll have this man in irons after all."

"Aye," grunted the engine man.

"And tend your engines. We've twelve hours to Rhea."

"Aye, sir. Come along, you."

The man stood, terror-rooted. "It was only sugar, s'help me. Just sugar, like he told me. I even tasted it. Ain't no harm in sugar, is there?"

"SUGAR!" The word came from Matthews enormous as an oath. "Ye didn't . . . ye didn't—"

"He doped the tanks with it, of course," said Rodgers. "Didn't you?"

The man nodded dumbly.

"Best take him aft, Mr. Matthews, and find just what tanks were doped. Though I think we can guess."

With one enormous hand clamping the smaller man's shoulder like a vise, Matthews propelled him back into the engine compartment. Alone, Rodgers listened to the muted click of the astrogator and found it a mockery. The *Stardust,* if she held course, was a doomed ship.

Five minutes later the bulkhead door slid open again. If Matthews had been angry before, it was as nothing to the fury

that now possessed him. He literally dragged the stowaway after him.

" 'Twas the auxiliaries. Our take-off jets will be that crusted she'd never lift off Rhea with them. Fool that I was, I noticed the throat pressure going up when we left Titan, and never thought nothin' of it!"

"You couldn't have helped it if you had," said Rodgers. "Get this man in irons and haul a tube inboard for inspection."

"He never told me what it would do," groaned the stowaway. "Said it would just slow you down, so another ship could beat you to Japetus. Not nothing about Rhea."

"Who was he?" growled Matthews. "You'll tell or I'll break your back, you sniveling scum of a—"

"He doesn't know," interrupted Rodgers. "Trust Ames to work through three or four agents. This man probably saw only the last of them. You remember he said he's new to Titan. It's a cold trail."

Matthews strode off with his prisoner, the man still pleading that course be changed. While Saturn wheeled in the ebony heavens and the astrogator continued to click out its computations, Rodgers bitterly reviewed the situation.

What the report on the high-emission take-off tubes would be he was only too sure. These jets, burning special fuel with a high exhaust velocity, were vital at take-offs and landings. Sugar in that fuel would have deposited inch-thick layers of stone-hard carbon in the refractory throat linings during the take-off run from Titan. Such deposits cut the efficiency of the jets by ninety percent.

Seizing pad and stylus, he made hasty calculations. They could land on Rhea by reversing the artificial gravity screens so as to reinforce the few jets the engine crew could scrape clear in the time remaining. To use the clogged tubes was to risk an explosion that would split the ship open from bow to stern. A landing with twenty clear jets and the screens was feasible—but deadly. The landing blasts could foul the cleared tubes anew,

and in the six hours men could endure on Rhea they could clean no more than ten or twelve jets at most—far too few to lift the ship again. They would be marooned twelve hours or more on Rhea—where seven meant death.

It was checkmate, and Ames had won.

One look at Matthews' face, when the engine man returned, was enough to confirm all forebodings.

"Clogged to the gills," he growled. "There's forty hours' work ahead of us to clean the lot. But the crew's started and we can land on twenty tubes with the screens helpin'."

"He's got us," said Rodgers bitterly. "It's what he planned —all foolproof from his end. If he grounds first, we've no call to land at all and can be expected to put back for Titan. Even if we complain of sabotage there, he can afford to laugh it off. All we'll have to offer in evidence is our word—we'll have to clean the tubes again before landing. The fellow you caught can't testify against Ames because he doesn't even know him."

Matthews shook his grizzled head.

"I ain't much on logic, son, and ye make it sound tough. Only thing for us, as I see it, is to make groundfall ahead of Ames and beat him to the beacon and the bismullah."

"I'm afraid it's not that simple."

"Afraid? What kind of talk is that, son? Where's your fighting spirit? We've got to. Them Rheans don't know a good ship from a bad one—those your dad first traded with aren't alive now, and the critters just swap like they been taught. One time when the *Stardust* was docked for repairs, your dad chartered an old scow. The Rheans loaded it and took off their trade goods happy as you please. They'll trade with Ames as easy. We've got to get down first. Fellow who wins the beacon contract gets the cargo too. And we can do it."

"Maybe," said Rodgers soberly. "But we'll never leave Rhea alive if we do. We can land on twenty tubes and the screens in a pinch. But we can't take off on the few your crew can clean while we're grounded."

"We'll have six hours," Matthews pointed out gruffly. "I'll have twelve tubes ready for you by then—thirteen maybe."

"It's not enough. Even with the gravities and the cruising jets helping, we'd need at least twenty tubes to lift. Here are the figures."

"Figures! Pah!" spat Matthews. "We don't run ships by the book out here, son. It's by blood and sweat, by the last drop of sky juice and the last microvolt in our capacitors and the last thump of our engines. That's how your dad did it and that's how I navigate. We have to try, don't we? Didn't ye just tell me what happens if we turn back to Titan like licked pups?"

"And what happens if we beat Ames to the beacon?" asked Rodgers. "He'll turn back to Titan without grounding, of course—why should he, when we've won? Back in port he'll pretend to be a good loser—and to be surprised, in a sportsmanlike way, when we never reach Titan again. After that he'll naturally take over the run anyway. We've got to face the fact that, once we make Rhea, we've a dead ship."

At that Matthews swore, roundly and vividly. "The *Stardust's* no dead ship and never will be so long as I've a pint in her tanks. Sure, and what d'ye plan to do if not to lick Ames?"

Rodgers hesitated, a slow flush creeping up his cheeks. "The first thing any master's supposed to do—restore his ship to spaceworthy condition."

The engine man smacked the chart table with his palm so that the instruments shook in their racks. "Ye can't do that, son. 'Tis a time to take a risk. Once Ames lands, he gets cargo. Won't be another batch of cargo for at least fifty hours after that, because your dad learned it takes the critters that long to collect and cure the stuff. If ye land an hour after Ames, ye'll take off empty handed. No contract *and* no bismullah, and the *Stardust* lost to ye when we get back."

The old man paused to look at Rodgers shrewdly.

"Course, maybe you're figurin' on landin' sixty, seventy hours after Ames. Maybe the Rheans would have cargo—and

maybe not. We don't know how soon they start collectin' a new batch after a trade visit. All we know is they've got a new batch every trip—always have had, at least. Ye might get cargo that way now and then, but it wouldn't do ye no good. Supposin' even we're lucky enough to get half the bismullah while Ames gets the other half—a cargo every other trip, maybe. Then what?

"Why," the engine man continued, "Ames would have the beacon contract, and that's eighty percent of his expenses. He'd only need to make twenty percent on the bismullah to break even. All ye'd have would be the same amount of bismullah —if ye're lucky—to pay all your expenses."

"Hold on, now. A full cargo of bismullah's enough to pay a profit on any trip, even without the contract," interposed Rodgers.

"Won't be with Ames in the picture," grunted the engine man. "Bismullah's a luxury trade right enough—a radioactive rare earth that's used in a lot of fancy beauty creams ought to fetch a fancy price. But Ames'll undersell you as long as he has to, and the beacon contract will let him do it easy. He'll break ye, son. That's why it's all or nothin'."

Rodgers stared thoughtfully before him. A new clicking of the astrogator broke in on his reverie. He stepped to the machine and fingered its keys. The *Stardust* responded with a new kick of directional tubes.

"Now you're blastin' on all jets, son," said Matthews with a grin. "Set her down and let the old girl get you off when the time comes. She always has."

"Not this time," said Rodgers quietly. "I've altered course."

Under his space tan the blood seemed to recede from Matthews' face. His breathing was suddenly loud in the tiny navigation cubby, and his broad figure seemed to take on a stoop. He strode to the bulkhead door, but even as he touched it he turned.

"It ain't what your dad would have done. But maybe you're different. Guess you play things the safe way, like Ames figured you would."

The other flushed. "Master's regulations forbid endangering crew or ship by landing on Rhea unless all take-off tubes are in order."

Deliberately the engine man spat on the deck. "Think we're a blasted bunch of passengers? We'd have took our chances—with any skipper willing to take his."

He swung back to the door.

"Mr. Matthews."

The engine man looked back, scowling.

"Regulations also require that inoperative tubes be repaired at once against possible emergencies. You'll keep your men at that detail."

"Aye. But I never dreamed Ben Rodgers' son would turn out to be a rule-book polisher," said Matthews bitterly. "Shows how wrong a man can be."

He surveyed Rodgers critically.

"Or maybe I've been even wronger. Blood don't always tell. It takes guts to pilot the Rhea run, to ground trip after trip on a moon where you're as good as dead after six hours. Maybe you never had that kind of guts. Maybe, Ames or no Ames, jets or no jets, you never would have set keel on Rhea anyway—because you ain't got what it takes."

He slammed the bulkhead door behind him so that the clang of it echoed funereally through the now silent ship.

Following the end of the second oiler's story, the hiss of the *Medusa's* circulation system resumed its omnipresent sway. The oiler himself seemed lost in contemplation of the lumin-tubes.

"You gotta feel sorry for the kid," the subthird said of a sudden. "So he was yellow, maybe, but with the cards stacked that way, who wouldn't be?"

"Takes more guts to go back and take your lickin' some-

times," put in an engine hand, "than to toss in your chips for keeps."

The first oiler spat accurately into the refuse well. "Yellow he was, for my money." He eyed the second oiler speculatively.

It was the subthird who saw how things stood and tried to smooth them. "You talk too much, Jennings. So that's your opinion and ours is ours. Don't forget the kid would have been risking every man aboard, not just his own neck. Take your heroes. I'll stick to a skipper who gets me back alive to spend my port money."

The engine man was bound to hear the whole story. "It couldn't have been that Ames had a bit of trouble and never got off Rhea himself after all?"

"No," said the second oiler curtly, and made a long business of lighting his pipe again. "He grounded nice as you please, while the *Stardust* swung around ten hours off, and put his signal on the beacon, and changed the batteries. The Rheans had been without salt and sodium a time, and the bismullah was waiting—a full cargo. When he took off and passed the *Stardust,* she was still drifting idle while her engine crew scraped jets. What could you expect? But I wouldn't call Rodgers yellow at all."

A gleam of understanding grew in the first oiler's gray eyes. "You know an almighty lot about this Rodgers," he said softly. "Almost as if *you'd* been aboard the *Stardust* that trip."

The subthird caught his eye, but the oiler wouldn't stop. "Almost as if, it seems. Maybe you were. Sure you were. *You're Rodgers, ain't you?*"

The subthird got up and placed himself between the two men. "Course not. What's got into you, Hodges? Better forget the whole thing. Time we turned in."

"Sit down, Peters," urged the second oiler. "Nobody's calling me yellow."

"Now hold on," urged the subthird. "Just a mistake, that's all. Hodges didn't mean nothing."

"No matter if he did," grunted the second. "I'm not Rodgers. I'm Ames."

General silence followed this announcement, its essence finally voiced by the engine hand.

"Now you ain't makin' sense, mister."

The second oiler swore softly. "Ain't I? You ought to read the articles you sign. Who's chairman of the fleet that owns this ship and twenty more? Not anybody called Ames. James Rodgers. Bismullah's a dead trade now, but it laid the keels of half this fleet."

"That don't make sense either. Ames got the beacon contract and the bismullah—and now he's second oiler on a Rodgers ship." The subthird shook his head. " 'Tain't reasonable."

"Served me right," said Ames. "I was young and tough and played it dirty. Got what was coming to me." He sucked hugely on the pipe and grinned. "Often think I was a fool not to see Rodgers' game. Then I tell the whole yarn to somebody else and when they don't see it either, I feel better."

"But you did get the contract *and* the bismullah."

"First trip, sure," nodded Ames. "But that was the last time. I never got another cargo—just made one trip after another servicing that blasted beacon. Like having a tiger by the tail, that was. I couldn't let go, because the government contract called for big cash penalties if I was a day late any trip. Couldn't change my schedule. Couldn't call off the contract without losing my shirt. Couldn't get another ship because my credit dropped soon as I started coming back to port with empty holds. I lost just enough each trip, over and above the eighty percent of expenses the contract paid, to get in the red deeper and deeper. Rodgers wrapped my own schedule around my neck and strung me up by it."

The subthird suddenly swore, like a man tormented beyond endurance.

"What in the name of seventeen blasted space devils did he *do?*" he roared.

Ames took a deep draw, enjoying the moment. "He wasn't yellow, lying off Rhea like that. Just smart. He cleaned all the tubes so he'd be able to take-off without any risk. Then he landed on Rhea—exactly two hundred thirty hours after I had."

"I was still five hours out from Rhea on my second trip then, never dreaming what he was up to. He landed nice as you please, swapped his cargo for all the bismullah the Rheans had worked up since I'd been there, and took off. Wasn't a scrap of bismullah for me when I landed a couple of hours later. The Rheans just looked kind of funny at us and crawled off. All we could do was service the beacon. Then we couldn't ground on Rhea again for two hundred thirty hours, and anyway the contract called for us to come two hundred forty hours later. Rodgers made his second landing two hundred thirty hours later and loaded bismullah again. We came—and serviced the beacon."

"Mean to say you never got cargo after that?" asked the subthird.

"Not once. That was the story from then on. I serviced the beacon, lost twenty percent of my expenses each trip, and Rodgers got the bismullah. The government wouldn't touch him—said the bismullah was none of their business and they couldn't interfere with free trade. But they wouldn't let me change schedule. Told me to work it out with Rodgers. Finally I went and offered him the contract for free. He wouldn't take it without my *Comet*."

Ames frowned at his pipe. "It still burns me up. He gave me a fair price, and I might still have a small ship if I hadn't run into bad luck in a hot spot on Luna. All's fair, as I'll admit, and I'd have done just what he did.

"But it burns me up all the same. Because why, of all the jobs he could have found for her, did he have to put my *Comet* on the Japetus run—hauling fertilizer?"

A. E. Van Vogt

FAR CENTAURUS

The next great stride—to the distant stars, five centuries through space across the span of light years.

I WAKENED with a start, and thought: How was Renfrew taking it?

I must have moved physically, for blackness edged with pain closed over me. How long I lay in that agonized faint, I have no means of knowing. My next awareness was of the thrusting of the engines that drove the spaceship.

Slowly this time, consciousness returned. I lay very quiet, feeling the weight of my years of sleep, determined to follow the routine prescribed so long ago by Pelham.

I didn't want to faint again.

I lay there, and I thought: It was silly to have worried about Jim Renfrew. He wasn't due to come out of his state of suspended animation for another fifty years.

I began to watch the illuminated face of the clock in the ceiling. It had registered 23:12; now it was 23:22. The ten minutes Pelham had suggested for a time lapse between passivity and initial action was up.

Slowly, I pushed my hand toward the edge of the bed. *Click!* My fingers pressed the button that was there. There was a faint hum. The automatic massager began to fumble gently over my naked form.

First, it rubbed my arms; then it moved to my legs, and so on over my body. As it progressed, I could feel the fine slick of oil that oozed from it working into my dry skin.

A dozen times I could have screamed from the pain of life

returning. But in an hour I was able to sit up and turn on the lights.

The small, sparsely furnished, familiar room couldn't hold my attention for more than an instant. I stood up.

The movement must have been too abrupt. I swayed, caught on to the metal column of the bed, and retched discolored stomach juices.

The nausea passed. But it required an effort of will for me to walk to the door, open it, and head along the narrow corridor that led to the control room.

I wasn't supposed to so much as pause there, but a spasm of absolutely dreadful fascination seized me; and I couldn't help it. I leaned over the control chair, and glanced at the chronometer.

It said: 53 years, 7 months, 2 weeks, 0 days, 0 hours and 27 minutes.

Fifty-three years! A little blindly, almost blankly: Back on Earth, the people we had known, the young men we'd gone to college with, that girl who had kissed me at the party given us the night we left—they were all dead. Or dying of old age.

I remembered the girl very vividly. She was pretty, vivacious, a complete stranger. She had laughed as she offered her red lips, and she had said "A kiss for the ugly one, too."

She'd be a grandmother now, or in her grave.

Tears came to my eyes. I brushed them away, and began to heat the can of concentrated liquid that was to be my first food. Slowly, my mind calmed.

Fifty-three years and seven and one half months, I thought drably. Nearly four years over my allotted time. I'd have to do some figuring before I took another dose of Eternity drug. Twenty grains had been calculated to preserve my flesh and my life for exactly fifty years.

The stuff was evidently more potent than Pelham had been able to estimate from his short period advance tests.

I sat tense, narrow-eyed, thinking about that. Abrupt con-

sciousness came of what I was doing. Laughter spat from lips. The sound split the silence like a series of pistol shots, startled me.

But it also relieved me. Was I sitting here actually being critical?

A miss of only four years was bull's-eye across that span of years.

Why, I was alive and still young. Time and space had been conquered. The universe belonged to man.

I ate my "soup," sipping each spoonful deliberately. I made the bowl last every second of thirty minutes. Then, greatly refreshed, I made my way back to the control room.

This time I paused for a long look through the plates. It took only a few moments to locate Sol, a very brightly glowing star in the approximate center of the rear-view plate.

Alpha Centauri required longer to locate. But it shone finally, a glow point in a light sprinkled darkness.

I wasted no time trying to estimate their distances. They *looked* right. In fifty-four years we had covered approximately one tenth of the four and one third light years to the famous nearest start system.

Satisfied, I threaded my way back to the living quarters. Take them in a row, I thought. Pelham first.

As I opened the air-tight door of Pelham's room, a sickening odor of decayed flesh tingled in my nostrils. With a gasp I slammed the door, stood there in the narrow hallway, shuddering.

After a minute, there was still nothing but the reality.

Pelham was dead.

I cannot clearly remember what I did then. I ran; I know that. I flung open Renfrew's door, then Blake's. The clean, sweet smell of their rooms, the sight of their silent bodies on their beds brought back a measure of my sanity.

A great sadness came to me. Poor, brave Pelham. Inventor of the Eternity drug that had made the great plunge into inter-

stellar space possible, he lay dead now from his own invention.

What was it he had said: "The chances are greatly against any of us dying. But there is what I am calling a death factor of about ten percent, a by-product of the first dose. If our bodies survive the initial shock, they will survive additional doses."

The death factor must be greater than ten percent. That extra four years the drug had kept me asleep—

Gloomily, I went to the storeroom, and procured my personal spacesuit and a tarpaulin. But even with their help, it was a horrible business. The drug had preserved the body to some extent, but pieces kept falling off as I lifted it.

At last, I carried the tarpaulin and its contents to the air lock, and shoved it into space.

I felt pressed now for time. These waking periods were to be brief affairs, in which what we called the "current" oxygen was to be used up, but the main reserves were not to be touched. Chemicals in each room slowly refreshed the "current" air over the years, readying it for the next to awaken.

In some curious defensive fashion, we had neglected to allow for an emergency like the death of one of our members; even as I climbed out of the spacesuit, I could feel the difference in the air I was breathing.

I went first to the radio. It had been calculated that half a light year was the limit of radio reception, and we were approaching that limit now.

Hurriedly, though carefully, I wrote my report out, then read it into a transcription record, and started sending. I set the record to repeat a hundred times.

In a little more than five months hence, headlines would be flaring on Earth.

I clamped my written report into the ship log book, and added a note for Renfrew at the bottom. It was a brief tribute to Pelham. My praise was heartfelt, but there was another reason behind my note. They had been pals, Renfrew, the engineering genius who built the ship, and Pelham, the great

chemist-doctor, whose Eternity drug had made it possible for men to take this fantastic journey into vastness.

It seemed to me that Renfrew, waking up into the great silence of the hurtling ship, would need my tribute to his friend and colleague. It was little enough for me to do, who loved them both.

The note written, I hastily examined the glowing engines, made notations of several instrument readings, and then counted out fifty-five grains of Eternity drug. That was as close as I could get to the amount I felt would be required for one hundred and fifty years.

For a long moment before sleep came, I thought of Renfrew and the terrible shock that was coming to him on top of all the natural reactions to his situations, that would strike deep into his peculiar, sensitive nature—

I stirred uneasily at the picture.

The worry was still in my mind when darkness came.

Almost instantly, I opened my eyes. I lay thinking: The drug! It hadn't worked.

The draggy feel of my body warned me of the truth. I lay very still watching the clock overhead. This time it was easier to follow the routine except that, once more, I could not refrain from examining the chronometer as I passed through the galley.

It read: 201 years, 1 month, 3 weeks, 5 days, 7 hours, 8 minutes.

I sipped my bowl of that super soup, then went eagerly to the big log book.

It is utterly impossible for me to describe the thrill that coursed through me, as I saw the familiar handwriting of Blake, and then, as I turned back the pages, of Renfrew.

My excitement drained slowly, as I read what Renfrew had written. It was a report; nothing more: gravitometric readings, a careful calculation of the distance covered, a detailed report on the performance of the engines, and, finally, an estimate of our speed variations, based on the seven consistent factors.

It was a splendid mathematical job, a first-rate scientific analysis. But that was all there was. No mention of Pelham, not a word of comment on what I had written or on what had happened.

Renfrew had wakened; and, if his report was any criterion, he might as well have been a robot.

I knew better than that.

So—I saw as I began to read Blake's report—did Blake.

BILL:

TEAR THIS SHEET OUT WHEN YOU'VE READ IT!

Well, the worst has happened. We couldn't have asked fate to give us an unkindlier kick in the pants. I hate to think of Pelham being dead—what a man he was, what a friend—but we all knew the risk we were taking, he more than any of us. Space rest his great soul.

But Renfrew's case is now serious. After all, we were worried, wondering how he'd take his first awakening, let alone a bang between the eyes like Pelham's death. And I think that first anxiety was justified.

As you and I have always known, Renfrew was one of Earth's fair-haired boys. Just imagine any one human being born with his combination of looks, money and intelligence. His great fault was that he never let the future trouble him. With that dazzling personality of his, and the crew of worshiping women and yes-men around him, he didn't have much time for anything but the present.

Realities always struck him like a thunderbolt. He could leave those three ex-wives of his—and they weren't so ex, if you ask me—without grasping that it was forever.

That good-by party was enough to put anyone into a sort of mental haze when it came to realities. To wake up a hundred years later, and realize that those he loved had withered, died and been eaten by worms—we-e-ll!

(I put it baldly like that because the human mind always thinks of the worst angles, no matter how it censors speech.)

I personally counted on Pelham acting as a sort of psychological support to Renfrew; and we both know that Pelham

recognized the extent of his influence over Renfrew. That influence must be replaced. Try to think of something, Bill, while you're charging around doing the routine work. We've got to live with that guy after we all wake up at the end of the five hundred years.

Tear out this sheet. What follows is routine. NED.

I burned the letter in the incinerator, examined the two sleeping bodies—how deathly quiet they lay!—and then returned to the control room.

In the plate, the sun was a very bright star, a jewel set in black velvet, a gorgeous, shining brilliant.

Alpha Centauri was brighter. It was a radiant light in that panoply of black and glitter. It was still impossible to make out the separate suns of Alpha A, B, C and Proxima, but their combined light brought a sense of awe and majesty.

Excitement blazed inside me; and consciousness came of the glory of this trip we were making, the first men to head for far Centaurus, the first men to dare aspire to the stars.

Even the thought of Earth failed to dim that surging tide of wonder; the thought that seven, possibly eight generations, had been born since our departure; the thought that the girl who had given me the sweet remembrance of her red lips, was now known to her descendants as their great-great-great-great-grandmother—if she was remembered at all.

The immense time involved, the whole idea, was too meaningless for emotion.

I did my work, took my third dose of the drug, and went to bed. The sleep found me still without a plan about Renfrew.

When I woke up, alarm bells were ringing.

I lay still. There was nothing else to do. If I had moved, consciousness would have slid from me. Though it was mental torture even to think it, I realized that, no matter what the danger, the quickest way was to follow my routine to the second and in every detail.

Somehow I did it. The bells clanged and *brrred,* but I lay there until it was time to get up. The clamor was hideous, as I passed through the control room. But I *passed* through, and sat for half an hour sipping my soup.

The conviction came to me that if that sound continued much longer, Blake and Renfrew would surely waken from their sleep.

At last, I felt free to cope with the emergency. Breathing hard, I eased myself into the control chair, cut off the mind-wrecking alarms, and switched on the plates.

A fire glowed at me from the rear-view plate. It was a colossal *white* fire, longer than it was wide, and filling nearly a quarter of the whole sky. The hideous thought came to me that we must be within a few million miles of some monstrous sun that had recently roared into this part of space.

Frantically, I manipulated the distance estimators—and then for a moment stared in blank disbelief at the answers that clicked metallically onto the product plate.

Seven miles! *Only* seven miles! Curious is the human mind. A moment before, when I had thought of it as an abnormally shaped sun, it hadn't resembled anything but an incandescent mass. Abruptly, now, I saw that it had a solid outline, an unmistakable material shape.

Stunned, I leaped to my feet because—

It was a spaceship! An enormous, mile-long ship. Rather —I sank back into my seat, subdued by the catastrophe I was witnessing, and consciously adjusting my mind—the flaming hell of what had been a spaceship. Nothing that had been alive could possibly still be conscious in that horror of ravenous fire. The only possibility was that the crew had succeeded in launching lifeboats.

Like a madman, I searched the heavens for a light, a glint of metal that would show the presence of survivors.

There was nothing but the night and the stars and the hell of burning ship.

After a long time, I noticed that it was farther away, and seemed to be receding. Whatever drive forces had matched its velocity to ours must be yielding to the fury of the energies that were consuming the ship.

I began to take pictures, and I felt justified in turning on the oxygen reserves. As it withdrew into distance, the miniature nova that had been a torpedo-shaped space liner began to change color, to lose its white intensity. It became a red fire silhouetted against darkness. My last glimpse showed it as a long, dull glow that looked like nothing else than a cherry colored nebula seen edge on, like a blaze reflecting from the night beyond a far horizon.

I had already, in between observations, done everything else required of me; and now, I re-connected the alarm system and, very reluctantly, my mind seething with speculation, returned to bed.

As I lay waiting for my final dosage of the trip to take effect, I thought: the great star system of Alpha Centauri must have inhabited planets. If my calculations were correct, we were only one point six light years from the main Alpha group of suns, slightly nearer than that to red Proxima.

Here was proof that the universe had at least one other supremely intelligent race. Wonders beyond our wildest expectations were in store for us. Thrill on thrill of anticipation raced through me.

It was only at the last instant, as sleep was already grasping at my brain that the realization struck that I had completely forgotten about the problem of Renfrew.

I felt no alarm. Surely, even Renfrew would come alive in that great fashion of his when confronted by a complex alien civilization.

Our troubles were over.

Excitement must have bridged that final one hundred fifty years of time. Because, when I wakened, I thought:

"We're here! It's over, the long night, the incredible journey. We'll all be waking, seeing each other, as well as the civilization out there. Seeing, too, the great Centauri suns."

The strange thing, it struck me as I lay there exulting, was that the time seemed long. And yet . . . yet I had been awake only three times, and only once for the equivalent of a full day.

In the truest sense of meaning, I had seen Blake and Renfrew—and Pelham—no more than a day and a half ago. I had had only thirty-six hours of consciousness since a pair of soft lips had set themselves against mine, and clung in the sweetest kiss of my life.

Then why this feeling that millenniums had ticked by, second on slow second? Why this eerie, empty awareness of a journey through fathomless, unending night?

Was the human mind so easily fooled?

It seemed to me, finally, that the answer was that *I* had been alive for those five hundred years, all my cells and my organs had existed, and it was not even impossible that some part of my brain had been horrendously aware throughout the entire unthinkable period.

And there was, of course, the additional psychological fact that I knew now that five hundred years had gone by, and that—

I saw with a mental start, that my ten minutes were up. Cautiously, I turned on the massager.

The gentle, padded hands had been working on me for about fifteen minutes when my door opened; the light clicked on, and there stood Blake.

The too-sharp movement of turning my head to look at him made me dizzy. I closed my eyes, and heard him walk across the room toward me.

After a minute, I was able to look at him again without seeing blurs. I saw then that he was carrying a bowl of the soup. He stood staring down at me with a strangely grim expression on his face.

At last, his long, thin countenance relaxed into a wan grin.

" 'Lo, Bill," he said. *"Ssshh!"* he hissed immediately.

"Now, don't try to speak. I'm going to start feeding you this soup while you're still lying down. The sooner you're up, the better I'll like it."

He was grim again, as he finished almost as if it was an afterthought: "I've been up for two weeks."

He sat down on the edge of the bed, and ladled out a spoonful of "soup." There was silence, then, except for the rustling sound of the massager. Slowly, the strength flowed through my body; and with each passing second, I became more aware of the grimness of Blake.

"What about Renfrew?" I managed finally, hoarsely. "He awake?"

Blake hesitated, then nodded. His expression darkened with frown; he said simply:

"He's mad, Bill, stark, staring mad. I had to tie him up. I've got him now in his room. He's quieter now, but at the beginning he was a gibbering maniac."

"Are you crazy?" I whispered at last. "Renfrew was never so sensitive as that. Depressed and sick, yes; but the mere passage of time, abrupt awareness that all his friends are dead, couldn't make him insane."

Blake was shaking his head. "It isn't only that. Bill—"

He paused, then: "Bill, I want you to prepare your mind for the greatest shock it's ever had."

I stared up at him with an empty feeling inside me. "What do you mean?"

He went on, grimacing: "I know you'll be able to take it. So don't get scared. You and I, Bill, are just a couple of lugs. We're along because we went to U with Renfrew and Pelham. Basically, it wouldn't matter to insensitives like us whether we landed in 1,000,000 B.C. or A.D. We'd just look around and say: 'Fancy seeing you here, mug!' or 'Who was that pterodactyl I saw you with last night? That wasn't no pterodactyl; that was Unthahorsten's bulbuous brained wife."

"For Mars' sake," I whispered, "get to the point. What's up?"

Blake rose to his feet. "Bill, after I'd read your reports about, and seen the photographs of, that burning ship, I got an idea. The Alpha suns were pretty close two weeks ago, only about six months away at our average speed of five hundred miles a second. I thought to myself: 'I'll see if I can tune in some of their radio stations.'

"Well," he smiled wryly, "I got hundreds in a few minutes. They came in all over the seven wave dials, with bell-like clarity."

He paused; he stared down at me, and his smile was a sickly thing. "Bill," he groaned, "we're the prize fools in creation. When I told Renfrew the truth, he folded up like ice melting into water."

Once more, he paused; the silence was too much for my straining nerves.

"For Heaven's sake, man—" I began. And stopped. And lay there, very still. Just like that the lightning of understanding flashed on me. My blood seemed to thunder through my veins. At last, weakly, I said: "You mean—"

Blake nodded. "Yeah," he said. "That's the way it is. And they've already spotted us with their spy rays and energy screens. A ship's coming out to meet us.

"I only hope," he finished gloomily, "they can do something for Jim."

I was sitting in the control chair an hour later when I saw the glint in the darkness. There was a flash of bright silver, that exploded into size. The next instant, an enormous spaceship had matched our velocity less than a mile away.

Blake and I looked at each other. "Did they say," I said shakily, "that that ship left its hangar ten minutes ago?"

Blake nodded. "They can make the trip from Earth to Centauri in three hours," he said.

I hadn't heard that before. Something happened inside

my brain. "What!" I shouted. "Why, it's taken us five hund—"

"I stopped; I sat there. "Three hours!" I whispered. "How *could* we have forgotten human progress?"

In the silence that fell then, we watched a dark hole open in the clifflike wall that faced us. Into this cavern, I directed our ship.

The rear-view plate showed that the cave entrance was closing. Ahead of us lights flashed on, and focused on a door. As I eased our craft to the metal floor, a face flickered onto our radio plate.

"Cassellahat!" Blake whispered in my ear. "The only chap who's talked direct to me so far."

It was a distinguished, a scholarly looking head and face that peered at us. Cassellahat smiled, and said:

"You may leave your ship, and go through the door you see."

I had a sense of empty spaces around us, as we climbed gingerly out into the vast receptor chamber. Interplanetary spaceship hangars were like that, I reminded myself. Only this one had an alien quality that—

"Nerves!" I thought sharply.

But I could see that Blake felt it, too. A silent duo, we filed through the doorway into a hallway, that opened into a very large, luxurious room.

It was such a room as a king or a movie actress on set might have walked into without blinking. It was all hung with gorgeous tapestries—that is, for a moment, I thought they were tapestries; then I saw they weren't. They were—I couldn't decide.

I had seen expensive furniture in some of the apartments Renfrew maintained. But these chesterfields, chairs and tables glittered at us, as if they were made of a matching design of differently colored fires. No, that was wrong; they didn't glitter at all. They—

Once more I couldn't decide.

I had no time for more detailed examination. For a man arrayed very much as we were, was rising from one of the chairs. I recognized Cassellahat.

He came forward, smiling. Then he slowed, his nose wrinkling. A moment later, he hastily shook our hands, then swiftly retreated to a chair ten feet away, and sat down rather primly.

It was an astoundingly ungracious performance. But I was glad that he had drawn back that way. Because, as he shook my hand so briefly, I had caught a faint whiff of perfume from him. It was a vaguely unpleasant odor; and, besides—a man using perfume in quantities!

I shuddered. What kind of foppish nonsense had the human race gone in for?

He was motioning us to sit down. I did so, wondering: Was this our reception? The erstwhile radio operator began:

"About your friend, I must caution you. He is a schizoid type, and our psychologists will be able to effect a temporary recovery only for the moment. A permanent cure will require a longer period, and your fullest co-operation. Fall in readily with all Mr. Renfrew's plans, unless, of course, he takes a dangerous turn.

"But now"—he squirted us a smile—"permit me to welcome you to the four planets of Centauri. It is a great moment for me, personally. From early childhood, I have been trained for the sole purpose of being your mentor and guide; and naturally I am overjoyed that the time has come when my exhaustive studies of the middle period American language and customs can be put to the practical use for which they were intended."

He didn't look overjoyed. He was wrinkling his nose in that funny way I had already noticed, and there was a generally pained expression on his face. But it was his words that shocked me.

"What do you mean," I asked, "studies in American? Don't people speak the universal language any more?"

"Of course"—he smiled—"but the language has developed

to a point where—I might as well be frank—you would have difficulty understanding such a simple word as 'yeih.' "

"Yeih?" Blake echoed.

"Meaning 'yes.' "

"Oh!"

We sat silent, Blake chewing his lower lip. It was Blake who finally said:

"What kind of places are the Centauri planets? You said something on the radio about the population centers having reverted to the city structure again."

"I shall be happy," said Cassellahat, "to show you as many of our great cities as you care to see. You are our guests, and several million credits have been placed to your separate accounts for you to use as you see fit."

"Gee!" said Blake.

"I must, however," Cassellahat went on, "give you a warning. It is important that you do not disillusion our peoples about yourselves. Therefore, you must never wander around the streets, or mingle with the crowds in any way. Always, your contact should be via newsreels, radio, or from the *inside* of a closed machine. If you have any plan to marry, you must now finally give up the idea."

"I don't get it!" Blake said wonderingly; and he spoke for us both.

Cassellahat finished firmly: "It is important that no one becomes aware that you have an offensive physical odor. It might damage your financial prospects considerably.

"And now"—he stood up—"for the time being, I shall leave you. I hope you don't mind if I wear a mask in future in your presence. I wish you well, gentlemen, and—"

He paused, glanced past us, said: "Ah, here is your friend."

I whirled, and I could see Blake twisting, staring—

"Hi, there, fellows," Renfrew said cheerfully from the door, then wryly: "Have we ever been a bunch of suckers?"

I felt choked. I raced up to him, caught his hand, hugged him. Blake was trying to do the same.

When we finally released Renfrew, and looked around, Cassellahat was gone.

Which was just as well. I had been wanting to punch him in the nose for his final remarks.

"Well, here goes!" Renfrew said.

He looked at Blake and me, grinned, rubbed his hands together gleefully, and added:

"For a week I've been watching, thinking up questions to ask this cluck and—"

He faced Cassellahat. "What," he began, "makes the speed of light constant?"

Cassellahat did not even blink. "Velocity equals the cube of the cube root of *gd*," he said, "*d* being the depth of the space time continuum, *g* the total toleration or gravity, as you would say, of all the matter in that continuum."

"How are planets formed?"

"A sun must balance itself in the space that it is in. It throws out matter as a sea vessel does anchors. That's a very rough description. I could give it to you in mathematical formula, but I'd have to write it down. After all, I'm not a scientist. These are merely facts that I've known from childhood, or so it seems."

"Just a minute," said Renfrew, puzzled. "A sun throws this matter out without any pressure other than its—desire—to balance itself?"

Cassellahat stared at him. "Of course not. The reason, the pressure involved, is very potent, I assure you. Without such a balance, the sun would fall out of this space. Only a few bachelor suns have learned how to maintain stability without planets."

"A few what?" echoed Renfrew.

I could see that he had been jarred into forgetting the questions he had been intending to ask one by swift one. Cassellahat's words cut across my thought; he said:

"A bachelor sun is a very old, cooled class M star. The

hottest one known has a temperature of one hundred ninety degrees F., the coldest forty-eight. Literally, a bachelor is a rogue, crochety with age. Its main feature is that it permits no matter, no planets, not even gases in its vicinity."

Renfrew sat silent, frowning, thoughtful. I seized the opportunity to carry on a train of idea.

"This business," I said, "of knowing all this stuff without being a scientist, interests me. For instance, back home every kid understood the atomic-rocket principle practically from the day he was born. Boys of eight and ten rode around in specially made toys, took them apart and put them together again. They *thought* rocket-atomic, and any new development in the field was just pie for them to absorb.

"Now, here's what I'd like to know: what is the parallel here to that particular angle?"

"The adeledicnander force," said Cassellahat. "I've already tried to explain it to Mr. Renfrew, but his mind seems to balk at some of the most simple aspects."

Renfrew roused himself, grimaced. "He's been trying to tell me that electrons think; and I won't swallow it."

Cassellahat shook his head. "Not think; they don't think. But they have a psychology."

"Electronic psychology!" I said.

"Simply adeledicnander," Cassellahat replied. "Any child—"

Renfrew groaned: "I know. Any child of six could tell me."

He turned to us. "That's why I lined up a lot of questions. I figured that if we got a good intermediate grounding, we might be able to slip into this adeledicnander stuff the way their kids do."

He faced Cassellahat. "Next question," he said. "What—"

Cassellahat had been looking at his watch. "I'm afraid, Mr. Renfrew," he interrupted, "that if you and I are going to be on the ferry to the Pelham planet, we'd better leave now. You can ask your questions on the way."

"What's all this?" I chimed in.

Renfrew explained: "He's taking me to the great engineering laboratories in the European mountains of Pelham. Want to come along?"

"Not me," I said.

Blake shrugged. "I don't fancy getting into one of those suits Cassellahat has provided for us, designed to keep our odor in, but not theirs out."

He finished: "Bill and I will stay here and play poker for some of that five million credits worth of dough we've got in the State bank.

Cassellahat turned at the door; there was a distinct frown on the flesh mask he wore. "You treat our government's gift very lightly."

"Yeih!" said Blake.

"So we stink," said Blake.

It was nine days since Cassellahat had taken Renfrew to the planet Pelham; and our only contact had been a radio telephone call from Renfrew on the third day, telling us not to worry.

Blake was standing at the window of our penthouse apartment in the city Newmerica; and I was on my back on a couch, in my mind a mixture of thoughts involving Renfrew's potential insanity and all the things I had heard and seen about the history of the past five hundred years.

I roused myself. "Quit it," I said. "We're faced with a change in the metabolism of the human body, probably due to the many different foods from remote stars that they eat. They must be able to smell better, too, because just being near us is agony to Cassellahat, whereas we only notice an unpleasantness from him. It's a case of three of us against billions of them. Frankly, I don't see an early victory over the problem, so let's just take it quietly."

There was no answer; so I returned to my reverie. My first radio message to Earth had been picked up; and so, when the interstellar drive was invented in 2320 A.D., less than one

hundred forty years after our departure, it was realized what would eventually happen.

In our honor, the four habitable planets of the Alpha A and B suns were called Renfrew, Pelham, Blake and Endicott. Since 2320, the populations of the four planets had become so dense that a total of nineteen billion people now dwelt on their narrowing land spaces. This in spite of migrations to the planets of more distant stars.

The space liner I had seen burning in 2511 A.D. was the only ship ever lost on the Earth-Centaurilane. Traveling at full speed, its screens must have reacted against our spaceship. All the automatics would instantly have flashed on; and, as those defenses were not able at that time to stop a ship that had gone Minus Infinity, every recoil engine aboard had probably blown up.

Such a thing could not happen again. So enormous had been the progress in the adeledicnander field of power, that the greatest liners could stop dead in the full fury of mid-flight.

We had been told not to feel any sense of blame for that one disaster, as many of the most important advances in adeledicnander electronic psychology had been made as the result of theoretical analyses of that great catastrophe.

I grew aware that Blake had flung himself disgustedly into a nearby chair.

"Boy, oh, boy," he said, "this is going to be some life for us. We can all anticipate about fifty more years of being pariahs in a civilization where we can't even understand how the simplest machines work."

I stirred uneasily. I had had similar thoughts. But I said nothing. Blake went on:

"I must admit, after I first discovered the Centauri planets had been colonized, I had pictures of myself bowling over some dame, and marrying her."

Involuntarily, my mind leaped to the memory of a pair of lips lifting up to mine. I shook myself. I said:

"I wonder how Renfrew is taking all this. He—"

A familiar voice from the door cut off my words. "Renfrew," it said, "is taking things beautifully now that the first shock has yielded to resignation, and resignation to purpose."

We had turned to face him by the time he finished. Renfrew walked slowly toward us, grinning. Watching him, I felt uncertain as to just how to take his built-up sanity.

He was at his best. His dark, wavy hair was perfectly combed. His startlingly blue eyes made his whole face come alive. He was a natural physical wonder; and at his normal he had all the shine and swagger of an actor in a carefully tailored picture.

He wore that shine and swagger now. He said:

"I've bought a spaceship, fellows. Took all my money and part of yours, too. But I knew you'd back me up. Am I right?"

"Why, sure," Blake and I echoed.

Blake went on alone: "What's the idea?"

"I get it," I chimed in. "We'll cruise all over the universe, live our life span exploring new worlds. Jim, you've got something there. Blake and I were just going to enter a suicide pact."

Renfrew was smiling. "We'll cruise for a while anyway."

Two days later, Cassellahat having offered no objection and no advice about Renfrew, we were in space.

It was a curious three months that followed. For a while I felt a sense of awe at the vastness of the cosmos. Silent planets swung into our viewing plates, and faded into remoteness behind us, leaving nostalgic memory of uninhabited, wind-lashed forests and plains, deserted, swollen seas and nameless suns.

The sight and the remembrance brought loneliness like an ache, and the knowledge, the slow knowledge, that this journeying was not lifting the weight of strangeness that had settled upon us ever since our arrival at Alpha Centauri.

There was nothing here for our souls to feed on, nothing that would satisfactorily fill one year of our life, let alone fifty. Nothing, nothing.

I watched the realization grow on Blake, and I waited for a sign from Renfrew that he felt it, too. The sign didn't come. That of itself worried me; then I grew aware of something else. Renfrew was watching us. Watching us with a hint in his manner of secret knowledge, a suggestion of secret purpose.

My alarm grew; and Renfrew's perpetual cheerfulness didn't help any. I was lying on my bunk at the end of the third month, thinking uneasily about the whole unsatisfactory situation, when my door opened, and Renfrew came in.

He carried a paralyzer gun and a rope. He pointed the gun at me, and said:

"Sorry, Bill. Cassellahat told me to take no chances, so just lie quiet while I tie you up."

"Blake!" I bellowed.

Renfrew shook his head gently. "No use," he said. "I was in his room first."

The gun was steady in his fingers, his blue eyes were steely. All I could do was tense my muscles against the ropes as he tied me, and trust to the fact that I was twice as strong, at least, as he was.

I thought in dismay: Surely I could prevent him from tying me too tightly.

He stepped back finally, said again. "Sorry, Bill." He added: "I hate to tell you this, but both of you went off the deep end mentally when we arrived at Centauri; and this is the cure prescribed by the psychologists whom Cassellahat consulted. You're supposed to get a shock as big as the one that knocked you for a loop."

The first time I'd paid no attention to his mention of Cassellahat's name. Now my mind flared with understanding.

Incredibly, Renfrew had been told that Blake and I were mad. All these months he had been held steady by a sense of responsibility toward us. It was a beautiful psychological scheme. The only thing was: *what* shock was going to be administered?

Renfrew's voice cut off my thought. He said:

"It won't be long now. We're already entering the field of the bachelor sun."

"Bachelor sun!" I yelled.

He made no reply. The instant the door closed behind him, I began to work on my bonds; all the time I was thinking:

What was it Cassellahat had said? Bachelor suns maintained themselves in this space by a precarious balancing.

In *this* space! The sweat poured down my face, as I pictured ourselves being precipitated into another plane of the space-time continuum—I could feel the ship falling when I finally worked my hands free of the rope.

I hadn't been tied long enough for the cords to interfere with my circulation. I headed for Blake's room. In two minutes we were on our way to the control cabin.

Renfrew didn't see us till we had him. Blake grabbed his gun; I hauled him out of the control chair with one mighty heave, and dumped him onto the floor.

He lay there, unresisting, grinning up at us. "Too late," he taunted. "We're approaching the first point of intolerance, and there's nothing you can do except prepare for the shock."

I scarcely heard him. I plumped myself into the chair, and glared into the viewing plates. Nothing showed. That stumped me for a second. Then I saw the recorder instruments. They were trembling furiously, registering a body of INFINITE size.

For one long moment I stared crazily at those incredible figures. Then plunged the decelerator far over. Before that pressure of full-driven adeledicnander, the machine grew rigid; I had a sudden fantastic picture of two irresistible forces in full collision. Gasping, I jerked the power out of gear.

We were still falling.

"An orbit," Blake was saying. "Get us into an orbit."

With shaking fingers, I pounded one out on the keyboard, basing my figures on a sun of Sol-ish size, gravity and mass.

The bachelor wouldn't let us have it.

I tried another orbit, and a third, and more—finally one that would have given us an orbit around mighty Antares itself. But the deadly reality remained. The ship plunged on, down and down.

And there was nothing visible on the plates, not a real shadow of substance. It seemed to me once that I could make out a vague blur of greater darkness against the black reaches of space. But the stars were few in every direction and it was impossible to be sure.

Finally, in despair, I whirled out of the seat, and knelt beside Renfrew, who was still making no effort to get up.

"Listen, Jim," I pleaded, "what did you do this for? What's going to happen?"

He was smiling easily. "Think," he said, "of an old, crusty, human bachelor. He maintains a relationship with his fellows, but the association is as remote as that which exists between a bachelor sun and the stars in the galaxy of which it is a part."

He added: "Any second now we'll strike the first period of intolerance. It works in jumps like quantum, each period being four hundred ninety-eight years, seven months and eight days plus a few hours."

It sounded like gibberish. "But what's going to happen?" I urged. "For Heaven's sake, man!"

He gazed up at me blandly; and, looking up at him, I had the sudden, wondering realization that he was sane, the old, completely rational Jim Renfrew, made better somehow, stronger. He said quietly:

"Why, it'll just knock us out of its toleration area; and in doing so will put us back—"

JERK!

The lurch was immensely violent. With a bang, I struck the floor, skidded, and then a hand—Renfrew's—caught me. And it was all over.

I stood up, conscious that we were no longer falling. I looked at the instrument board. All the lights were dim, un-

troubled, the needles firmly at zero. I turned and stared at Renfrew, and at Blake, who was ruefully picking himself from the floor.

Renfrew said persuasively: "Let me at the control board, Bill. I want to see our course for Earth."

For a long minute, I gazed at him; and then, slowly, I stepped aside. I stood by as he set the controls and pulled the accelerator over. Renfrew looked up.

"We'll reach Earth in about eight hours," he said, "and it'll be about a year and a half after we left five hundred years ago."

Something began to tug at the roof of my cranium. It took several seconds before I realized that it was my brain jumping with the tremendous understanding that suddenly flowed in upon me.

The bachelor sun. I thought dazedly. In easing us out of its field of toleration, it had simply precipitated us into a period of time beyond its field. Renfrew had said . . . had said that it worked in jumps of . . . four hundred ninety-eight years and some seven months and—

But what about the ship? Wouldn't twenty-seventh century adeledicnander brought to the twenty-second century, before it was invented, change the course of history? I mumbled the question.

Renfrew shook his head. "Do *we* understand it? Do we even dare monkey with the raw power inside those engines? I'll say not. As for the ship, we'll keep it for our own private use."

"B-but—" I began.

He cut me off. "Look, Bill," he said, "here's the situation: that girl who kissed you—don't think I didn't see you falling like a ton of bricks—is going to be sitting beside you fifty years from now, when *your* voice from space reports to Earth that you had wakened on your first lap of the first trip to Centaurus."

That's exactly what happened.

Hal Clement

COLD FRONT

The master salesman had a selling job to do in each new territory; his plan was simple, though not always easy.

MASTER SALESMAN ALF VICKERS walked slowly along the beach behind his companion, and pondered. He was never quite sure how to begin his talks. If it had been a question of selling, alone, he would have had no worries, even though it was necessary to employ careful reasoning rather than emotional high-pressure when one was not too well acquainted with the emotional build-up of an alien race; but when the selling had to be done to an entire people, and there was a moral certainty of reprimand and perhaps of disrating if the Federation Government caught him, he began to think of the consequences of his errors, before he made them.

The people, at least, were a peaceful seeming lot for such a rugged planet; that was some relief. The frowning, almost sheer six thousand feet of Observatory Hill, at whose foot he now stood, had made him think uncomfortably of the wilder mountain tribes of history and legend on Earth. Big as they were, he reflected, gazing at the specimen walking ahead of him, the few he had met were almost painfully polite. It had made easy the task of revealing nothing of himself or his mission until he had acquired a good control of their language; but courteous or not, Vickers felt that the explanation could not be put off much longer.

Serrnak Deg, who had devoted so much time to teaching his speech to the Earthman, was plainly curious; and there was only one plausible reason for his insisting that morning that they drive along to the beach at the foot of the mountain.

Plainly, he was willing to keep Vickers' secrets from his compatriot, if Vickers so wished; but he had definite intentions of learning them himself.

Vickers braced himself as Deg stopped walking and turned to face him. As the man stopped beside him, the Heklan began to talk.

"I have asked you no questions since you first intimated a desire not to answer them. I have taken you on trust, on what seemed to me a thin excuse—that you feared the results of possible misunderstanding caused by your ignorance of our language. I think my expenditure of time and effort merits some reward in the shape of satisfied curiosity."

"The excuse was not thin," replied Vickers in the Heklan language. "More than one man in my position has suffered injury or death as a result of just such misunderstandings. It is important that you get no false ideas from me about my people, the world from which I come, and the other races and worlds which are depending on my success. It is my intention to tell not only you, but eventually all your people, my full story; but I am depending on you for assurance that I can make myself clear, and I also want to hear your impression of what I say before it is transmitted to the rest of the planet or to that part of it on which you are on friendly terms."

He stopped to gather his thoughts. The surroundings were not quite what he would have chosen—a rocky beach at the foot of a nearly perpendicular cliff, pounded by breakers from an ocean that was tinted a curiously disconcerting pink. The sky was a slightly deeper shade, and suspended in it was the hardly visible disk of a giant red sun.

The audience would have been more disconcerting than the environment, to one less accustomed than Vickers to nonhuman beings. Serrnak Deg had no need of the heavy jacket with which Vickers warded off the stiff breeze. He was protected by a layer of fat which must have accounted for half of his weight; and the fur that covered his body was thick enough to hide the straps supporting his only garment—a pair of trunks

whose primary function was to contain pockets. His face, with its enormous eyeballs and almost nonexistent nose, reminded Vickers of a spectral tarsier; but the well-developed skull behind the grotesque features had already shown itself to contain a keen brain.

"One of our mapping vessels noted some time ago that this planet was inhabited by intelligent creatures," Vickers went on. "There is a standard procedure in such cases. We learned long ago not to make immediate, open contact with the bulk of the world's population. It is a mathematical certainty that there will be enough objection to contact with aliens, to result in violence."

"I find that hard to believe," interjected Serrnak. "Why should there be objection?"

The Earthman creased his brows and tried to remember Deg's word for "superstition," but the concept had never arisen in their conversation.

"There have been many reasons," he finally answered. "The one that leaps to my mind I am still unable to express in your language. I am afraid you will have to be content with my assurance that it is so. For that reason, a single agent is always sent to contact the smallest, practicable group of individuals, to become acquainted with them and through them with their people, and with their help to accustom the race gradually to the existence, appearance, and company of natives of other worlds. Make no mistake; it is a delicate task, and an error can have really ghastly results. I hope you don't find that out first hand."

"I don't know about your business, but errors can be pretty serious in mine," said Deg. "What consequence, other than this planet's failure to join the organization you refer to as 'We,' can arise from mistakes of yours? I take it that you are the agent responsible for us."

"I am; I'm sorry if I am not giving my explanations in proper order. It is my business to convince you and your fellows at this place that the Federation can do your people untold

good, and to enlist your help in persuading your race, or at least your nation, to the same effect."

"Why should persuasion be necessary?" asked Serrnak. "It seems obvious that good would result from such an action. Contact between groups living on different parts of this one world has always produced beneficial exchanges of ideas and natural products, and I should imagine that this would be even more true of interplanetary commerce. Some planets, I suppose, would have more than enough metals, for example—that occurred to me because that is one of our most serious lacks; and certainly, if you have solved the secret of interstellar travel, there is much we can learn from you. Do you really mean to imply that some races have actually refused to benefit by such a chance?"

Vickers nodded solemnly.

"Too many," he said. "A certain suspicion of strangers, a doubt as to our intentions, is natural of course. We expect and allow for it; our work is to allay it, and prove that we have no intention of dealing unfairly with anybody. Your attitude is encouraging; I hope a majority of your people share it. Do you suppose they will, Deg?"

The answer was slow and hesitant.

"I can't be sure—naturally. I have already given you my feelings on the matter, but I cannot answer for everyone. I will test my co-workers here, as I suppose you want me to, bearing your warnings carefully in mind. Will that be satisfactory?"

"That will be excellent. I can't find the words to thank you, but I'll try to give any help in my power if you have undesirable reactions. I admit I have worried a good deal about the outcome of this meeting; one can never be sure of having chosen the right person for the first advances."

Deg nodded.

"I understand why you wanted privacy as much as possible for our conversations. You chose a good place to land on this

world; we are about as isolated a group as you could have found, except perhaps for the stations in the far interior of this continent. The cities are mostly located in the large islands of the equatorial zone—I suppose you observed that, before landing. If I may ask, how did you find this station? It is not particularly easy to mark from the air, according to my experience."

"It was found by accident, on a photograph," replied Vickers. "We decided that, if it were not deserted, it should prove a good place to start operations. We were not sure of its purpose; I still don't know what you do here, but it had the desired isolation, and the presence of someone with authority seemed probable. Are you in very close touch with any of the cities?"

"We have to be. This is a weather station, and is tied into a tight communication network linking all the observatories on this continent with one of the cities. The constant flow of reports is received there, and integrated into a master weather map of the continent; and an intercity net further combines these maps into a world map in one of the largest population centers. The information and world forecasts are there made available to any who have need of them—including the original stations; we require the total picture for long-range local forecasting. All the exact sciences have a similar network for coordination and exchange of information."

"That sounds efficient," remarked Vickers. "We have similar organization on and between the worlds of the Union. There is a great deal of written information on such matters in my ship; I shall be glad to translate for you, any time and care to come aboard. The more you understand about our civilization, the better."

"I shall take advantage of that offer presently," returned Deg. "At the moment, I fear I have ignored my duties too long. There will be several hours' observation records in my office, and one of the computing machines has been behaving suspiciously. If it goes out altogether it may be more than our technician can handle, and I'd hate the thought of doing much

of that computation manually. Would you care to visit my office? I can show you something of the station on the way, and you can return the favor when I visit your ship."

Vickers had been hoping for such an offer. He had not wanted to make the suggestion himself, but up to now he had acquired very little idea of the state of technical advancement of these people. A look at any sort of laboratory would give him a good idea of their science in general, for no field of knowledge progresses far without corresponding development in the others. He gladly accepted Serrnak's offer.

They had been walking as they conversed, toward the point where the giant breakers flung themselves against the stone rampart of the lowest terrace. Now the meteorologist turned back toward the hill, the Earthman following. Parked against the face of the cliff was Deg's car, a four-wheeled vehicle with enormous balloon tires. Its owner vaulted easily over the side into the driver's seat; Vickers clambered in more slowly, hampered by the sixty pounds that Hekla's gravity added to his normal weight.

Deg set the car in motion, picking his way between rockfalls. Vickers constantly expected to see the tires cut through by the sharp-edged fragments of slate littering the way, but the tough treads remained intact; and presently the stones disappeared, as the mountain was left behind. After a quarter of an hour, Deg was able to turn inland, and a little later there began to be signs of a narrow road, which led in a rather steep climb back toward the hill. Here they were able to put on more speed, although Deg was bothered part of the time by the sun shining in his eyes. Vickers was able to look directly at the hazy, mottled crimson disk without much discomfort.

About a quarter of the way up, the road skirted a small pocket in the hillside, covering perhaps a quarter of an acre. It was covered with regular rows of purplish vegetation, and a small, low-roofed stone building stood between it and the road. Deg stopped the car and entered the building, indicating that

Vickers should wait. The Earthman heard conversation through the open door, but was unable to distinguish any words. The Heklan emerged after a moment, and the ride continued. Vickers had seen several of the little gardens on the way down the mountain, but Deg did not offer to explain them on either trip.

The rest of the drive was uneventful, and the car presently emerged from the road—now almost a tunnel—on to a nearly flat space two or three hundred yards across, beyond which the hill rose sharply to its real summit two hundred feet above. At the base of this final peak, an opening fifty yards across and half as high led into the hill; and from the opening, and equally wide, a paved, level strip ran across the flat space to its very edge. Vickers had assumed this to be a landing runway for aircraft; and the silvery hull of his own little ship lay now to one side of it.

The car drove straight on into the cavern, through it, and into a smaller chamber beyond, in which a number of the vehicles were parked. Leaving the vehicle here, the men proceeded through two narrow hallways. Along both sides of the second were a number of doors; Deg opened one of these, to reveal an elevator, into which he motioned the Earthman. It was similar to the terrestrial elevator, controlled by the passenger. Vickers counted the buttons, trying to get some idea of the extent of the station. There were forty-five of them, indicating that there were at least that many levels to the observatory.

Deg touched one of the highest buttons with the horny tip of a finger, and they were carried smoothly upwards. Vickers could not tell the number of levels they passed, but the ride was comparatively short. They emerged directly into a large room, which Deg described as the local integration and prediction laboratory.

It was about one hundred feet square. Its most prominent feature was a set of six five-foot globes, spaced equally along one wall, and representing the first maps Vickers had seen of Hekla.

Each was covered with a complicated network of lines and symbols; the Earthman assumed that these were the equivalents of the isobars, fronts, cloud symbols and other data with which meteorologists habitually decorate their work. They meant little to Vickers. He was able to tell, from his recollection of the planet's surface as viewed from space, that the deep purple areas represented water, while land was white. The globes were evidently of some translucent material like frosted glass, and were lighted from within.

At the base of each globe was a desk, at which an operator sat. Some were working small computing machines; others were busy with the incomprehensible diagrams and graphs of their profession. On the rest of the floor space were a number of large computers, some manned and active, others deserted. Across the room from the globes four more of the machines, far larger and more complex than their fellows, were set at the four sides of a large table whose top was a map, evidently of the region centering about the observatory, set up and lighted in similar fashion to the world maps. The operators of these calculators were grouped about the keyboard nearest to Vickers and Deg; and with a word of apology, the Heklan stepped over to them, to listen to their conversation.

Vickers waited for him, gazing around at the ordered efficiency represented in the activity of the laboratory. It pleased him; everything he saw bespoke a high culture, considerable progress in the physical sciences, mechanical skill, and an apparent tendency toward international co-operation—a smoothly working planet-wide weather system could scarcely be maintained in the face of strained international relationships. He also noted an apparent lack of metal; it was used only where necessary, as in electric conductors. Wood and synthetics were used almost entirely.

He was not too surprised; he had known of the low density of the planet before leaving the big interstellar flyer which had brought him and his smaller ship to the neighborhood of R Coronae. Hekla had nearly twice the diameter of Earth, but

its surface gravity was only forty percent higher. The forty percent, he reflected, was plenty; his legs were aching perpetually, and he had been getting—and needing—twelve hours' sleep out of twenty-four. Hekla's thirty-two hour day complicated his schedule; day or night, he had to sleep after twelve or fourteen hours of activity. The Heklans, even when the proportionate length of their day was considered, got along with unbelievably little rest; Deg, Vickers had learned, counted on four to five hours of sleep, which he got as soon after sunset as his work permitted.

Vickers' reflections were interrupted by Serrnak's return.

"I am very sorry," the Heklan said, "but I cannot show you more of our station at the moment. The main integrator is definitely making mistakes, and I shall have to help carry out alternate procedure with the smaller machines until the technical section can correct the trouble. I shall send someone to show you the way back to your ship, unless you wish to do something else until I can rejoin you."

"I will return to the ship, for a while at least," replied Vickers. "I can find my own way, if you will tell me the level at which I should stop the elevator. I saw no means of telling the number of the floor from which we started."

"The flight ramp and road exit are on the thirtieth level," Deg informed him. "The control buttons in the cage are in order. I regret being so abrupt, but there is nothing else to be done. I will come to your ship when I am again free."

Vickers nodded, touched Serrnak's hand in the standard Heklan gesture of farewell, and entered the elevator. It was lit by a source which would have reminded the Earthman of an old carbon filament bulb, if he had ever seen such a thing, but the reddish glow was sufficient to enable him to count off thirty buttons. He pressed the thirtieth, and felt the cage sink slowly downwards. The ride, as before, was brief, and the door opened automatically at its termination.

He stepped into the corridor, turned right—and stopped

short. The hallway should have extended for twenty yards and been crossed by another at that point. Instead, only a few paces from the elevator it opened directly into a room almost as large as the integration laboratory above. Electrical equipment, as unfamiliar as any other scientific apparatus to Vickers, crowded the floor; and among the installations sat or stood fully a score of Heklans, all apparently busily occupied. Vickers stood gazing into the chamber for several moments, until one of the workers chanced to glance up. His big eyes blinked once; then he took a pair of earphones from his head, rose from his seat, and approached the Earthman.

"Your ship is out on the landing ramp, which is on the thirtieth level," he said. "Can I help you in locating it?"

"I thought I had reached the thirtieth level," replied Vickers. "Serrnak Deg told me that the elevator buttons were in order, and I certainly pressed the thirtieth." The Heklan looked steadily at him for several seconds, and blinked once more. Then he nodded his head violently.

"I think I see what must have happened," he said. "You counted upward from the bottom of the panel. You are now on the sixteenth of the forty-five levels. The station was dug downwards from the top of the mountain, and it was natural to number in that direction. Do your people normally number from the ground up?"

"Yes, we do, on buildings above ground level; but if I had stopped to recall that this place is underground I should at least have asked Deg whether you counted up or down. It is a silly error on my part. Now that I am here, however, do you mind my seeing your department? I will try to keep out of the way of any activity?"

The big eyes blinked again, as their owner hesitated. Vickers decided that the expression on the grotesque face denoted discomfort.

"I dislike to appear discourteous," the answer finally came, "but the trouble in the computing department has thrown a heavy load on us. We are all extremely busy, so that I can

neither guide you around our section myself, nor provide another to do so. Some of the equipment is too dangerous to permit your examining it unattended. I am extremely sorry, but there is nothing I can do to grant your request. Do you think you can find the way back to your ship from here? If not, I can show you to the landing stage."

He started to move toward the elevator before Vickers could answer him; but the Earthman declined the offer of guidance. The Heklan pointed out the proper button—they were labeled in Heklan characters, but the numbers happened not to stand out very clearly to blue-sensitive eyes—and returned to the chamber of electrical devices, leaving an elevator with a decidedly thoughtful occupant.

Vickers retraced his original way from the ship without further misadventure, passed through the air lock, still pondering. Until the time he had left Serrnak in his laboratory, everything had appeared to be proceeding favorably. The meteorologist had evidently been convinced of his sincerity—Vickers chalked up another point in favor of the policy of sticking to the truth as much as possible; but the technician on the sixteenth level had been patently anxious to get rid of him. The creature had said the entire force was too busy to show him around the department, and in the same breath had offered to guide him back to the spaceship. A personal dislike, or actual physical repugnance to a member of an alien race might be responsible, of course; but the apparently genuine effort at courtesy suggested some other cause.

Vickers settled down in a well padded chair—his ship was a converted lifeboat, and he had personally fitted it with items of luxury seldom found on such a craft—and gave his mind to the problem. In the first place, no Heklan except Serrnak Deg had had opportunity to become acquainted with him; during the three months in which he had learned the language of this race, Vickers had confined his attention to that one individual, and had caught no more than fleeting glimpses of the other

inhabitants of the station. It seemed, therefore, that the Heklan on the sixteenth level had either formed an instantaneous dislike of the Earthman, had acquired one from Deg, or had been ordered by the same individual not to permit Vickers to examine that level. The first possibility the man had already dismissed as unlikely; and the other two posed the same question—to wit, what had he done or said to arouse the Heklan's suspicion or dislike? Deg must be a fine actor, if Vickers' opinion of his own ability to judge the expression of the Heklan face was not overrated; for no suggestion of any emotion save friendly interest had been apparent to the man in Serrnak's attitude.

The conversation of the last hour or two was the most probable source of trouble. Vickers reviewed his words, with the aid of a nearly eidetic memory. He had, in the first place, adhered strictly to the truth in describing the Federation and its method of establishing contact with "new" races. He had described himself as an agent of the Federation, which was his only serious departure from scrupulous verity; but the lie should not have been obvious to Deg. He had answered the Heklan's questions plausibly—and truthfully, as he recalled. He had known more than one Federation ambassador, and knew their usual troubles.

It was at this point that a recollection of the nature of Deg's questions suddenly stood out in Vickers' mind. There had been only one of importance, though he had asked it more than once, and in a variety of ways. The Heklan had been unable to understand why membership in or dealings with the Federation had been refused by some races; and—had he been entirely unmoved by Vickers' speech, "A certain suspicion of strangers is natural"? A moment later he had said that "naturally" he could not answer for the attitude of the rest of his people; had the inflection of his voice as he uttered that word denoted sarcasm, or some other emotion—or was Vickers' imagination adding to the picture painted by memory?

The man had not learned so much as he had meant to of

the living conditions on Hekla. If the population were small and conditions hard, an instinct of co-operation rather than competition might be dominant; such cases were not unknown. If this were true of Hekla, Deg and his people would not be merely reluctant to have dealings with outsiders; they would be terrified at the mere thought, after the impression the meteorologist must have gained from what Vickers had considered "natural."

The theory made Vickers extremely uncomfortable, but long cogitation produced no other. He berated himself for giving so much information without obtaining any in return; but there was no use reviving a dead issue. He determined to return to the observatory, both to check his theory and to obtain some of the missing information. He arose, opened the air lock, and walked across the small plateau toward the great entry way.

Twenty minutes later, a very thoughtful man, he was sitting in his control room. He had met four Heklans inside the entrance; they had been extremely polite; but he had not reached the elevator. Something was decidedly wrong. He had learned nothing new or helpful on the second trip, but it seemed pretty certain that action was required.

Action was not Vickers' strong point, and none knew the fact better than he. Where a good personality and a working knowledge of practical persuasion were required, he shone; but if there were need of a more specialized field of knowledge, he knew when to call for help.

He turned to the panel below the outer vision screens, and pulled a small section out and down to form a shelf. On this was mounted a small medium-crystal unit. Such a transmitter was standard lifeboat equipment, but this set's crystal had been recharged, removing it from the universal distress medium, and matched to only one other unit, which was in the interstellar ship now resting on Hekla's innermost satellite. The set was keyed, as the high-frequency interrupter which per-

mitted voice and, later, vision to be sent and received even by a ship in second-order flight had not at that time been developed.

Vickers checked the tiny green light which assured him that heat or stray static charges had not altered the crystal's medium; then, at a very fair speed, he began rapping out a message. He had to wait several minutes for an acknowledgment, but finally a brief series of long and short flashes blinked from a second bulb above the key, and he closed the unit, satisfied.

There was nothing more he could do at the moment. He had been active since mid-morning, and it was now well after noon; he suddenly realized that his legs and back were aching fiercely from the unaccustomed walking under Heklan gravity. Vickers rose, closed and secured the inner air lock door, and dropped thankfully onto his bunk.

When he awoke, the sun was quite low in the west. Its enormous disk, ill-defined at the best of times, was nearly hidden in haze; the western half of the sky was tinted a deep blood-red never approached by a terrestrial sunset. The daily cumulous cloud was still above the mountain, its top streaming away inland and forming a crimson-lit finger pointing at Observatory Hill. Vickers, looking at it, was reminded to turn on the homing transmitter in his ship, in case his help should have difficulty in locating him.

He spent more than an hour at the board, using all his radio equipment in every combination and on every band he could reach, in an effort to pick up Heklan communications. On the entire electromagnetic spectrum, except the bands of too high frequency for communication beyond the horizon, static was strong and constant; frequency modulation did little to help, and brought nothing that might have been an intelligent message. He considered charging a spare crystal, but realized that no unit so far energized on any Federation world had chanced on the medium of a widely separated crystal, and the chances against doing so had been computed as something like the number of electrons in the universe. Two crystals had to be charged in physical contact to respond to each other across

what, for want of a better name, was called a "medium." Even if Heklan science had reached such a point, there was no hope of discovering the fact by searching the legions of possible media. Vickers took that for granted, and after some time at the radios was prepared to state that they had no other means of long-range communication.

He had given up the search and was eating, when a second lifeboat settled down beside his own. Vickers failed to notice it for several minutes; when he did, he immediately snapped on the standard communicator and tuned to the frequency his crew normally used on such occasions. He gave the set a moment to warm, and then called.

"Hello, Dave! Is everything all right?" The answer came back at once.

"This is Macklin. Rodin is here, all right. He's in the air lock, compressing; I'm afraid he's a little annoyed at you. Why in the name of common sense didn't you let us know that you had an atmospheric pressure of forty pounds on this blasted hilltop? He could have ridden all the way in the lock, building up gradually. He'll be over there as soon as possible; as soon as he opens the lock, you'd better trot over and help him. He had enough stuff to set up in business for himself. All right?"

"All serene. Can you stay with us, or do they want the boat back in a hurry?"

"I have to go back. I don't know what they want with this can, and I'm much too modest to suppose they'd need me, but them's the orders. You'd better watch for Dave; the lock pressure is nearly forty now."

"All right. Don't get lost."

Vickers snapped off the set, and opened the inner lock door. A glance through the control room port showed that the other ship was still sealed, but he strolled out onto the landing stage and waited there for Rodin to emerge. He noted with a shiver that the temperature at the top of the hill had not increased perceptibly since morning.

He had only a few moments to wait; the lock of the visiting ship opened silently, and its occupant hailed him.

"Hello, Alf! What have you messed up this time?"

"Don't take so much for granted, cloud-chaser," returned Vickers. "As a matter of fact, I'm not quite sure what, if anything, has been botched. I'm just a little doubtful of the attitude I aroused in the lad who runs this place. It's a weather station, and he's a member of your honored and ancient profession, so I called on you to stand by and assist in further negotiations."

"You would. I'd just gotten back on a more or less human eating and sleeping schedule. Will you help me get my stuff over to your ship? Mack is probably getting tired of waiting." Vickers nodded and they set to work; Rodin continued to talk, commenting unfavorably on Hekla's atmospheric pressure, gravity—this as he tried to lift a piece of apparatus normally well within his strength—temperature, and various other characteristics. He did not mention its weather, except to say that it looked interesting from an academic viewpoint.

The equipment had been transferred, and the men were settled in the warmth of Vickers' ship before Rodin asked for details of the situation. Vickers gave a report of the last three months, pointing out that he had refused either to give an explanation of himself or request information of his hosts until he was sure of his ability to use their language; that Serrnak Deg, the only Heklan with whom he had come into more than momentary contact during this time, had seemed both friendly and interested until exchange of information had begun; and that Vickers had given much more information than he had received. He stressed the fact that the Heklan's behavior had not become openly hostile; they were carefully keeping him away from anything in the observatory that might do him good, but they were being very polite about it. Rodin asked a question at this point.

"If they don't want you, who aren't a scientist, wandering

around the place, what good will I do? Don't you want them to know I'm a meteorologist?"

"I don't want to wander. Deg said he'd call for me as soon as his emergency had passed—which may merely mean when he's made the place safe for inspection by a suspicious alien. I'll introduce you to him as a fellow meteorologist. Your inability to speak his language will take care of any risk there might be of your saying the wrong thing. I don't know how advanced their metro is—the lab I saw looked quite imposing, but they may not be up to us. That's one thing I'd like you to pass judgment on. If they're behind us, we'll try to make you helpful to them in as many ways as possible—generally produce a good impression. If they know more than you, we'll decide on some other course of action."

"You're the boss. You must have learned something about these folks, and formed some plans, so I'll follow your lead. I don't suppose you noticed anything pertinent about the climate and local weather, did you? I know it's summer, of course; but is this a representative temperature? How's the lapse rate? Did you notice anything of the prevailing winds and general cloud forms? Don't answer—I can tell by your expression. I have my work cut out for me. Can you get hold of any locally produced weather maps, or even a decent relief map either of the continent or the whole planet?" Vickers pursed his lips doubtfully.

"The only weather maps I've seen are those big globes in the integration laboratory, unless the screens of those computing machines could be called maps. I think they put out their answers in terms of the squiggles you fellows deface paper with. If Deg will let us into that laboratory again, you can judge that for yourself; but I wouldn't count on that happening. I don't know about printed maps or charts; I've seen books, bound like ours, but I haven't even tried to read their language, and haven't seen how their books are illustrated. They undoubtedly have relief maps; if you need them in meteorology, I suppose they do too, and should have them around; but getting hold of one is something you'll just have to pray for."

Rodin nodded, and dropped the subject. They discussed the physical appearance of the Heklans, speculating on their probable evolutionary history; the doings on Hekla's satellite during Vickers' three-month absence from the interstellar ship; and every subject that occurred to them. They had plenty of time, for two of Hekla's long days had rolled by and the sun was again in the west before Serrnak Deg appeared outside the air lock.

Vickers heard him slap the outer door with the flat of his hand, and immediately opened the lock. The pudgy being walked—in spite of his build, his motion was nothing like a fat man's waddle—into the control room, where Rodin was waiting. The tarsierlike face showed no surprise as the big eyes took in the two Earthmen. Vickers forestalled any remarks by speaking himself.

"This is David Rodin, a meteorologist from the crew of the ship that brought me to this planetary system," he said. "I called for him after I left you two days ago. If I had known the nature of this place, I would have arranged to have him accompany me when I came, and learn your language at the same time. I imagine you would find a member of your own profession a more interesting conversationalist than I. I shall do my best to make up for my failure by acting as interpreter—I shall have to learn more of your meteorological terms, as well as our own, if you start to talk shop. Rodin would like to see your observatory with us, if you are ready to show the rest of it to me."

"We noticed your friend's arrival," replied Deg. "I regret being kept busy for so long. I will gladly show him the integration room if you wish it—perhaps he will understand our simple installations without explanation. I should be grateful for any improvements he might suggest. Do you wish to come now, or would you rather show me some of the photographic material you promised to let me see the next time I visited you?"

Vickers felt slightly nonplussed, and admitted to himself

that Deg, if he were trying to be an unobtrusive hindrance to further human exploration of his observatory, could scarcely have done better. He gave the only possible answer.

"By all means stay and see the material. Dave's arrival had driven it from my mind. The pictures are accompanied by much printed information which you won't be able to read; but we can probably make up for that. Rodin has traveled even more than I, and can give first-hand explanations of much that you will see. The atlases are in the library to the rear of the ship."

Vickers took care to hide his annoyance as the two men and the Heklan examined and discussed the records of the dozens of worlds that made up the Federation and the human, near-human, and completely unhuman beings that peopled them. Deg expressed surprise that his own world, so comparatively close to Earth and Thanno, the principal Federation planets, had remained overlooked while Federation sway had reached across the Galaxy and beyond to its sprawling satellites, the Magellanic Clouds. The men pointed out the vast number of stars, which rendered surveys either cursory in nature or prohibitively long in duration. A sun was likely to be investigated closely enough to detect its planets, if any, only if there were something intrinsically peculiar about the star itself, as was the case with R Coronae. Privately, Vickers wondered how soon the Federation actually would become interested enough in the giant variable to give it a close looking over.

Deg remained until sunset. By that time both the human beings were again badly in need of sleep, and the Heklan had gathered about as much knowledge of other races of the Galaxy as any one could without first-hand experience.

Vickers watched his guest through the control room port as he vanished into the still faintly crimson-lit gloom. A general glumness permeated the atmosphere of the room. Rodin waited for his companion to make some remark, but Vickers remained silent for several minutes. To the meteorologist's dis-

appointment, he finally retired without saying anything about the problem in hand.

Sunrise, after the five and a half hours of darkness which prevailed at this season, found both men awake, though not entirely refreshed. Rodin, owing to his brief residence on Hekla, was in rather better condition than Vickers, but even he was beginning to feel and show the effects of the excess gravity. Both men ate an enormous breakfast—Vickers' stores were far from exhausted—and then the "diplomat" led the way out of the ship, turning purposefully toward the great entrance in the rock.

"If I don't get in this time, I think I'll give it up as a bad job," he remarked as they approached the opening. "I'm beginning to think Deg is a little too smooth for me. I wish I were more certain of what cooled him so toward us; my present idea is just a working hypothesis, and goodness knows when it may stop working."

The men passed into the shadowy hangar, in which Vickers had never yet seen an aircraft. No one was there; the tunnels opening into the great cavern yawned dimly lighted and empty. Vickers led the way toward the elevator, without stopping to wonder where the Heklans might be. He knew the natives would meet them before they got far.

He was right. As they turned the last corner, bringing them in sight of the elevator, a Heklan stepped from the cage. Vickers was not sure whether or not it was one of the individuals whom he had already encountered—his comparative isolation with Deg while he was learning the Heklan language had given him no opportunity to study facial or other differences between menbers of that race—but this specimen was far too tall to be Deg himself. His eyes were almost on a level with those of the Earthmen, while his general build was in normal Heklan proportion. He must have weighed, on Hekla, between four and five hundred pounds.

The tremendous native listened politely to Vickers' re-

quest to see Serrnak Deg, and nodded when the man finished speaking.

"I was coming to see you," he said. "Deg has asked me to act as your guide. He will be glad to see you whenever you particularly wish it, but routine duties of his position, which he has been rather neglecting for the past few months, prevent him from spending all his time with you from now on. He asks me to apologize for any seeming discourtesy, but I am sure you understand his difficulties. In what way can I help you now?"

"My friend is a meteorologist, and would be interested in seeing the integration laboratory Deg showed me, as well as your observing apparatus. I understand perfectly why Deg cannot be with us, and I thank you for granting your time. Perhaps if we went first to the integration laboratory, and you explained your weather maps and their symbols to Rodin, he could comprehend the rest of your system more easily. He has been eager to see that laboratory ever since I described it to him. Does that meet with your approval?" Vickers had ideas of his own about the assignment of this enormous individual as their host, but determined to make the best of the situation.

"Whatever you wish," returned the guide. "My name, by the way, is Marn Trangero—either name is acceptable as a form of address, as you probably gathered from Deg. We will go up to the integration room, then, if you are ready; as a matter of fact, Deg is probably there himself, just now, so if there is something you particularly wished to discuss with him, you will have a chance to do so."

Vickers nodded understanding as they entered the dimly lit elevator. The Heklan pressed the button—Vickers examined carefully the faint character beside it, as he did so—and they slid gently upward.

The laboratory was as Vickers remembered it; the globes, the computing machines, the operating personnel. The big central machine was active this time, with the four operators

in their seats on each side. Marn pointed out one of these individuals.

"Deg is here, as I thought," he said. "Did you particularly wish to speak to him?"

"Not if he is busy," replied Vickers. "Could you explain these devices to us? I will translate to Rodin as well as I can, though you will probably have to explain most of your scientific terms with simpler words. What is the connection between those globes and the computers beneath them?"

"The globes are weather maps. The computers handle observed values of air pressure, temperature, humidity, and similar factors, setting them up as isopleths on the globes and calculating their individual trends. Each of the machines handles one such variable and its individual characteristics. The results of these computations are fed to the intermediate machines, and finally to the master computer, which is supposed to give a complete weather picture. All the factors at once could be shown on the main screen, but it would make a very confusing picture. The trouble, of course, is that each factor is dependent on all the others, and the integration has to be fed back to the individual machines to correct their values for each few minutes of a prediction. It is really a very clumsy system; a single computer capable of tracking all the variables at once would be far speedier and more convenient. Such a machine is being designed at one of our research centers, but it is so far much too bulky, complex, and tricky for an outpost such as this. I should like a chance at it myself, as you can well imagine."

Vickers could imagine; he recalled scientist friends of his own who would give ten years of their lives for six months' time at some particular laboratory, or machine, or in some fellow worker's company. He relayed the explanation to Rodin, who nodded in understanding and examined very closely each of the globes in turn. The meteorologist then spent several minutes carefully observing the operation of the keyboards of several of the machines. He finally asked for an illustration of the system's accuracy; Vickers relayed the question to Marn.

"Since I am not acquainted with your own progress in this field, I hesitate to call our work accurate," was the reply. "In meteorology, it is difficult to define accuracy, in any case. If you like, however, I can translate the machine's prediction of the next few hours' weather. From a cursory glance, it seems to me that it will be different enough from the local norm to afford you a fair check on our methods. If you will wait a few moments, I will interpret the records from the machine."

He left them, while Vickers explained his proposition to Rodin. The meteorologist approved strongly, and they waited expectantly for the Heklan's return. He was gone only a few minutes.

"You know," he began as he approached the men, "that this station is at the coast of a large continental area. You have undoubtedly noticed the stiff sea breeze which forms a normal part of our weather at this season. It is a direct cause of the cumulous cloud which builds up above this hill each day.

"Since your arrival, Vickers, the weather has departed only very slightly from the norm. Now, however, a weak warm front has developed to the southwest, and is moving in this direction. Its first symptoms, high thin clouds, will arrive about midday. They will lower rapidly, reaching the level of the station three and a half hours later, and precipitation will occur almost immediately after that. Winds will continue rising until the rain starts; thereafter they will decrease, and shift from south to west. I could give you numerical values for wind velocity, air pressure, temperature, and so forth; but they would have to be translated into your units, and I don't believe either of us can do that. All clouds should disappear before sunset, including the cumulous head one usually sees over this point. Deg has just warned the gardeners on the lower slopes of the front, I see. It might be a good idea to move your ship into the hangar—though you know the strength of your own creations better than I; use your judgment. Winds sometimes become rather violent here at the hilltop."

"The ship is a pretty solid piece of machinery, and we can anchor to the mountain if necessary," replied Vickers. "Why do you warn the gardeners, if this is to be a weak front? And what is the nature of the gardens I saw on my drive with Deg a few days ago?"

"The plants nourish a fermenting protozoan in their roots, and store alcohol in their stems and spore pods. The longer they grow, the higher the alcoholic content; but a strong wind ruptures the pods and frees the alcohol. Consequently, we try to harvest just before a wind. The local gardens are small; we simply produce enough to power the station. I believe there are efforts under way to modify the protozoans to produce better fuels, but if they have met with success we have yet to receive the benefits. Your arrival, of course, may obviate the need for further work along such lines; you certainly didn't cross interstellar space on combustion engines."

Vickers nodded absently at this remark, as he translated the gist of the forecast to Rodin. The latter listened carefully, making certain of details that seemed unimportant to his companion, and finally asked to see the observing portions of the station.

Trangero agreed instantly to this request, and turned back to the elevator. Once again they traveled upward, emerging this time into a small chamber from which half a dozen doors opened. The Heklan led them through one of these.

They found themselves on a flat area, only a few yards square, and obviously artificial, located only a dozen yards below the actual peak of Observatory Hill. A metal ladder led to the peak itself, which was topped by a slender but solid-looking tower. Part of the platform was walled with stone, and the rest guarded by a metal rail. Several instruments were mounted on the rail itself, and some larger devices on the rock just outside. The tower was topped by a tiny vane. Marn showed the men each of the instruments in turn, vaulting the rail easily to demonstrate those beyond it. Neither of the human beings enjoyed going outside its protection; the rock was smooth, and after the

first few feet sloped very steeply toward the landing ramp sixty yards below. The ship was just visible from the safe side of the railing.

The instruments seemed normal enough to Vickers, and even Rodin had little to say about them. There were thermometers, precipitation gauges, and hygrometers, all connected electrically to recorders in the laboratories below. The vane on the tower was similarly connected to record wind direction, and it contained a pitot head to measure velocity.

The few other devices were slight variants of standard—to Rodin—equipment; and the meteorologist felt rather let down at the end of the tour. He felt fairly sure that the Heklans, in spite of their efficient world net, were no further advanced in meteorology than any Federation planet; but he decided not to voice the opinion until after checking a fair number of their predictions. He awaited the approaching storm with interest.

He glanced occasionally to the southwest while they were at the summit, but the omnipresent haze of Hekla's dense atmosphere hid the horizon; and no signs of the approaching weather appeared before Marn shepherded the men back to the elevator. The other parts of the station, which the Heklan insisted on showing them, were connected with the maintenance of the place rather than with its primary function. The power plant was on the same level as the hangar; it consisted of six surprisingly small electric generators driven by equally diminutive internal-combustion engines, which, according to Marn, burned the alcohol produced by the gardens on the slopes of the hill. These units powered the elevator, supplied heat and light sufficient for the Heklans' small needs, and operated the numerous items of electrical equipment.

They spent fully three hours inspecting the station; if Marn had been ordered to tire the men out on nonessential details, he was doing splendidly. Rodin lost interest after leaving the roof. Vickers kept up a good front, but eventually even he had to call a halt for rest. Perhaps his fatigue can be blamed for

causing him to forget an issue he had planned to force—the room full of electric equipment from which he had been diverted two days before, and which Marn had skipped by accident or design. Vickers did forget it, made his excuses to the Heklan, and was back in the ship before he recalled the matter. By that time he was nearly asleep, settled back in one of the chairs in the ship's library.

He slept four or five hours. Rodin remained awake for some time, but was asleep when Vickers awoke; by the time both had finished sleeping, eating, and talking over the morning's events, the sun was well up in the sky. So far the weather appeared normal, though Vickers, who had been around long enough to be used to it, thought the breeze was less strong and the cumulous banner less well developed than usual. Marn's weather was not jumping the gun, at any rate.

It was not late, either. A few minutes before noon—as nearly as they could judge the time—Rodin detected the first wisps of cirrus, high above. They must have been above the horizon for some time, invisible in the haze. As the men were on the landward—and consequently the leeward—side of the hill, the change in wind direction was not noticeable for some time; but its strength mounted rapidly as the clouds thickened and dropped closer to the hilltop. Rodin, stepping outside the ship for a moment, was taken by surprise and knocked over by a gust that eddied around the rock shoulder. He got to his feet immediately, bracing himself against the metal hull, and looked around. Toward the west, the haze had thickened so that it was now impossible to make out details on the plateau inland. Two or three thousand feet overhead, the scud raced along parallel to the coast. On Earth, under similar circumstances, the cloud layers would have been gray; but the fainter, red light of R Coronae here gave them an indescribably eerie pinkish color. All traces of the sky had by now disappeared. Rodin could actually feel in his ears the change in air pressure as other eddies swirled by him. It was still cold; the frontal surface, of course, had not yet come down to his level.

He returned to the control room, thinking. If Vickers had translated correctly, Marn had forecast a weak front; and this outside weather could already be called violent without stretching facts. Either the Heklan prediction was inaccurate, or Rodin would have to revise his ideas of what constituted a violent storm. In three months of residence, Vickers had noticed nothing extraordinary about the weather; and it seemed probable that if Heklan atmospheric phenomena were built to a different scale, the fact would have become apparent in that time. Rodin, thinking the matter over, adopted his usual course of withholding an opinion.

The wind increased, and as the clouds thickened the pinkish light faded into total darkness. Rain began to beat against the metal hull, and the light from the control room window penetrated only a few feet into the murk. The clouds had reached the level of the hilltop. Rodin cautiously opened the outer air lock door again; fortunately it was power-operated, or he would have been unable to close it. Several times the ship shuddered from end to end under the blast. Vickers charged the anchoring fields along the keel after the first tremor, but evidently the rock itself was quivering; an occasional vibration could still be felt during the heaviest gusts of wind. There would be more shattered rock on the terraces when the weather cleared.

The time passed slowly. Rodin kept watching the clock, trying to figure the time of Heklan day on the twenty-four hour dial in order to keep check on Marn's prediction. Vickers read and thought, while the storm reached and passed its height. Twice the men were disturbed by an odd, crackling sound, and looked up to see ghostly fingers of fire crawling about the transparent ports. The meteorologist blinked at the sight; he was accustomed to electrical activity in storms with strong vertical development, but to get it with strictly horizontal winds somewhat surprised him. He wondered what velocity the wind must have reached to ionize the raindrops. Vickers felt thankful for the metallic construction of the ship.

Slowly the shuddering diminished, the howling of the wind died, and the dense fog grew once more pinkly luminous. The men ventured outside again, finding that the wind was still strong, but no longer savage. The fog was thinning, and the wind, true to prediction, was blowing from inland, bringing even to this height odors from the vast plains and hills of the great continent.

Rodin stood looking, as the view cleared, at the reappearing sun and the vaguely visible landscape, sniffing the odd smells, and gradually acquiring a puzzled expression. Vickers noted it, and started to ask the nature of the trouble; but he changed his mind, knowing that he was unlikely to get an answer, and went into the ship instead. He found himself shivering, as usual on Hekla, so he picked up the jacket he had discarded after the morning's inspection tour. Attired in this, he went outside again.

Rodin was waiting for him, the expression of puzzlement still on his face. He caught sight of Vickers, and beckoned to him.

"Let's go back to the station," he said. "I want to pick a bone with Marn, or with Deg, if necessary. There are one or two things going on that I don't fully understand. These friends of yours don't have to sleep half the day like a couple of poor Earthmen, do they?"

"They should still be active," Vickers replied, looking at the sun. "It's a couple of hours till sundown, if what I can see of the sun and what I can guess of the horizon's position aren't combining to fool me. These fellows sleep for a few hours each night from habit, and I guess they can do without that for quite a time. There should be no trouble in finding Marn, if he's supposed to be looking after us."

There was no trouble. They did not meet Trangero the moment they entered the station, but the first Heklan who saw them made it his business to deliver them into the proper custody, and led them to an office on a floor two or three levels be-

low the integration room. Marn raised his enormous bulk from behind a desk as they entered. Vickers thought fleetingly of the curious similarity between human and Heklan forms of courtesy; then he turned his attention to the task of interpreting for the two weather men. Rodin opened the conversation with a question.

"Did I understand correctly that you were basing the prediction for the last few hours upon the passage of a warm front?"

"That is correct. I was several minutes off on the time of passage; but that is not included explicitly in the machine solutions that are recorded, and I did not occupy a machine with the detailed problem."

"Then a front actually did pass? Why is it that there is no perceptible temperature change? I expected it to be a good deal warmer, from the amount of water vapor that was condensed at the frontal surface."

"I can only suppose that you are working from acquaintance with a different set of conditions. The temperature change was slight, I agree—I said the front was weak. I should have given you numerical values if we had had any measuring system in common. We must remedy that situation as soon as possible, by the way. The condensation and precipitation which seems abnormal to you agreed as usual with the predictions, as did the winds."

Rodin pondered for several moments before replying to this.

"There's a good deal I don't understand even yet," he finally said. "I'd better start from the beginning and learn your units. Then I might try following some of your computations manually. If that doesn't clear me up, nothing will. Can you spare the time?"

Vickers hesitated before translating this. He hated the thought of using so much time as Rodin's proposal would require; the months he had spent on the alien language seemed more than enough. There seemed, however, no alternative; so he transmitted the meteorologist's request. Marn agreed, as he

had expected; and what was worse, the energetic giant plunged immediately into the task, and kept at it for nearly four hours. The translation of units of distance, temperature, weight, angle, and so forth was not in itself a difficult problem; but it was complicated enormously by Vickers' lack of scientific vocabulary. By the time Rodin had acquired a table of Heklan numerals and a series of conversion graphs, both Earthmen were in a sadly irritated frame of mind.

Vickers was more than willing to call it a day when they returned to the ship but the meteorologist seemed to partake of the determination displayed by his Heklan fellow. He settled down with his written material, which included one of the maps made during the recent frontal passage, and began working. Vickers wanted to remain awake to hear his conclusions, and settled into a chair in the cramped library; but sheets of used paper began to litter the place, and Rodin, whenever he had to probe among them to check some previous figures, plainly considered his friend to be rather in the way. Vickers finally gave up and went to bed—a habit into which he was falling more and more deeply. The weather man labored on.

He was a red-eyed scarecrow, hunched over the little desk, as he expounded his results the next morning. His words were slow and careful; he had evidently spent a long time on Vickers' problem after obtaining a satisfactory solution of his own.

"There is one fact that I think will help you greatly," he said. "This planet is in an ice age—we could tell that from space. In this hemisphere, where it is now two Earth years past midsummer, the ice cap extends more than thirty degrees from the pole. In the other, the large island and continental masses possess glacial sheets scores of feet in thickness to within forty degrees of the equator; and heavy snow fields reach to less than twenty degrees south latitude in spots. On smaller islands, whose temperatures should be fairly well stabilized by the ocean, there appears to be much snow at very low latitudes.

"I suppose, though that's outside my line, that these people developed their civilization as a result of the period of glaciation, just as the races of Earth, Thanno, and a lot of the other Federation planets seem to have. Now, however, they have the situation of a growing race cramped into the equatorial regions of a planet—admittedly a large one, but with most of its land area in the middle latitudes.

"On Earth we pushed the isotherms fifteen degrees further from the equator, and benefited greatly thereby. How about selling the same idea to the Heklans, if you really want a convincing example of what we can do for them?"

"Two questions, please," returned Vickers. "First, what's this about changing the Earth's weather? I don't recall ever having heard of such a thing. In the second place, I'm afraid we'll have to sell the Heklans a little more than possible advantages. Our working theory, remember, is that I inadvertently got them leery of the combative and competitive elements of Federation culture. How would curbing their ice age, if you can do it, help that? Also, and most important, how does it help us to get a corner on the metal trade here before a real Federation agent steps in and opens the place up? Once that happens, every company from Regulus to Vega will have trading ships on Hekla; and we want Belt Metals to be solidly established here by that time. How about that?"

"To answer your first point, we didn't change Earth's weather, but it's climate. There'd be no point in trying to explain the difference to you, I guess. They stepped up the CO_2 content of the atmosphere, producing an increased blanketing effect. At first the equatorial regions were uncomfortably hot as a result; but when the thing stabilized again a lot of the polar caps had melted, and a lot of formerly desert land in the torrid zones, which had been canalized for the purpose, had flooded in consequence. The net result was an increased evaporation surface and, through a lot of steps a little too technical for the present discussion, a shallower temperature drop toward the

poles. The general public has forgotten it, I know, but I thought it was still taught in history. Surely you heard of it sometime during your formative years."

"Perhaps I did. However, that doesn't answer the other question."

"That's your problem, at least for the details. I should say, however, that their acceptance of that proposition would entail the purchase of a lot of machinery by the Heklans. A genius like you can probably take the idea on from there."

Vickers pursed his lips silently, and thought. There seemed to be some elements of value in Rodin's idea; elements from which, with a little cerebration, something might be built.

"If they were to accept such a proposition, how long would it take to get the thing under way?" he asked finally.

"The general plans could be obtained directly from the records, and apparatus set up in a few months, I imagine," was the answer. "It would depend to some extent on the nature and location of Hekla's volcanic areas—they are the best source of carbon dioxide, I believe; they were used on Earth. I imagine the *Alula* would require quite a few round trips to Sol to transport enough apparatus for this planet."

"How soon could we promise results to the Heklans? Remember, we want to establish ourselves solidly with them before competition gets too heavy. If a Federation agent gets here before any agreements are reached, trade of any sort will be frozen until the diplomats finish shaking hands. Until one does arrive, they can't touch us legally for entering into contracts with the Heklans, though they may frown slightly at the company's failure to report the discovery of civilization here."

"I'm afraid it would be a couple of decades—half a year or so, here—before the change in climate would be really noticeable. However, the theory would be clear enough to people like Deg; and they would begin to notice results on their maps almost immediately."

"How much increase in CO_2 would be needed to produce

a useful result? And would that much be harmful to the Heklans? I imagine we would have to show Deg some solid figures to overcome his suspicions enough even to consider the proposal."

"I've done a little figuring in that direction, but I can't give you a precise answer to the first question until I have more accurate and detailed knowledge of the present composition of Hekla's atmosphere. You'll have to do some investigating of your own for the second; I have no idea of the physical limitations of these people. That fellow Trangero looks rugged enough to take an awful beating from almost anything."

"The question is not whether they can stand it, but whether it will cause them discomfort. That would be plenty to squash the whole idea, unless they have a collective personality appallingly different from ours. In any case, the proposition will have to be presented delicately. We shall hold more discussions with Marn or Deg or any one else who will listen to us, provided he is a meteorologist; and I think it will be possible to build up to the subject, while describing our mechanical abilities and history and so on, in such a way as to make him think it's his own idea. The plan certainly has possibilities, Dave. We'll eat, and you'd better sleep, and then we'll have another session in the observatory. Sound all right?"

Rodin agreed that it sounded all right. It was just bad luck that Marn Trangero didn't.

The conversations seemed to steer themselves in the way Vickers desired, for several hours. They ran from subject to subject, dealing with matters connected with the Federation whenever Trangero held the conversational initiative, and veering back to things Heklan when Vickers could get control. The Earthmen learned of the lives of the half billion Heklans scattered among the equatorial islands of their planet; of their commerce, their science, their arts—but nothing of their wars, except against their environment. Casual references to feats of physical strength and resistance to cold, heat, and hunger, made

the human beings blink, but partly reassured them of the creatures' ability to stand slight modifications of their atmosphere.

The Heklan learned of the doings of the natives of the scores of worlds whose co-operating governments called themselves the Federation. Vickers censored carefully the more drastic reference to strife, though he did try to make clear the more harmless aspects of a competitive culture. If he had known the mechanics of atomic converters and second-order drive units, Marn would probably have wormed the information from him; the creature was at least as acute a questioner as Vickers. The man was slowly realizing this fact, though he had originally believed that the giant had been chosen as their companion principally for his physical qualities. He wondered, as he strove to lead the talk to climate and the possibility of Federation science's improving it for Hekla, whether the bulky being were not laughing silently at his attempts. It was a demoralizing suspicion, which success did nothing to allay; for the "success" came with suspicious rapidity after he set to work in earnest.

He had introduced the story Rodin had told him of the undertaking to modify the climate of their home planet; and Marn had appeared extremely interested, asking for a description of the results. Then he asked for a comparison of normal climates of Earth and Hekla. It was this request that Vickers misconstrued as success for his efforts. With rather good salesmanship, he decided to break off the discussion at this point, pleading the usual fatigue—they had been talking for several hours. Marn, he felt, had conceived the desired idea and should grow more enthusiastic if allowed to mull it over for a few hours. Vickers had become enthusiastic himself, which was a pity.

When they next met, Vickers felt happier than ever; for Marn's first words were a request for the method the Earthmen had employed to modify their climate. He asked, politely enough not to give offense, that Vickers translate Rodin's explanation rather than attempt to give one of his own; evidently he wanted precision. Vickers assented gladly. Rodin had found

some details of the operation in Vickers' library, and was able to add much more from his own memory; so for half an hour he and Vickers alternated relation and translation, while the absorbed Heklan listened silently, his round face showing no expression that Vickers could interpret.

"An absorbing tale," Trangero said when the Earthmen had finished. "I applaud the ingenuity of your meteorologists and astronomers. I have seen no maps of your planet, but I gathered that much of its land area is in the middle latitudes, as is the case with Hekla. An operation such as you have described would open to us millions of square miles of land areas which at present we can use only in summer and autumn, if at all. It is a pity that it would not be effective on this planet."

For a moment Vickers sat, stunned by the Heklan's matter-of-fact remark.

"Why would it not work here?" he finally asked. "I have gathered that carbon dioxide is no more dangerous to you than to us; and it should be as effective a blanketing agent here. I realize the enormous thickness and extent of your ice caps, but even they would eventually yield to a general increase in temperature."

"Undoubtedly they would," replied Marn. "Unfortunately, your plan remains unworkable. In the first place, the atmosphere of this planet already contains approximately one and a half percent of carbon dioxide. More would not harm us, but neither would it help. You have forgotten something, which Rodin should have remembered if he knows as much of astronomy as our science requires. Our sun is much redder than yours; and an increase in the atmospheric content of any infrared opaque gas such as carbon dioxide, ozone, or water vapor would cut out nearly as much additional incident radiation as it would retain the natural heat. I admit there would be some gain, but to make it enough to be a real help would demand a radical change in our atmosphere. You are working under different conditions here than you met on your own world, and your meteorology will not help us."

Vickers thought furiously as the Heklan fell silent. Rodin, who had not understood a word of the last conversation, realized from his friend's expression that something had gone seriously wrong. He tapped Vickers' shoulder to gain his attention, and asked for an explanation. It was given to him.

"Is he right, Dave?" asked Vickers, at the end. "Surely there is some modification of that trick that would work for this world. I have to give up that idea."

"I can't, on the spur of the moment, think of anything that would serve," replied Rodin, "but it seems to me that there must be some fairly simple solution. If necessary, we can call in one of the physics or chemistry boys, though I don't like to do that. I'd advise you not to appear too perturbed about the matter—after all, this was supposed to be one of Marn's suggestions. Just let the conversation ride on for an hour or two, and we can talk it over at dinner."

Vickers recognized the soundness of this bit of advice, and endeavored to abide by it. He was never sure that Marn had not noticed and interpreted the symptoms of annoyance the Earthman must have shown; but the creature never gave any indication of realizing what had occurred. The rest of the morning was spent in answering his questions about beings and events beyond the R Coronae system.

In spite of his promise, Rodin said practically nothing at dinner; and immediately after the meal he repaired to the library. Vickers followed, and occupied a seat well out of the meteorologist's way. Silence ensued, broken only by the rustling of paper and the occasional scratch of a stylus in Rodin's hand. Vickers neither wrote nor read; he sat and thought, while his friend worked. In his own way, he also was working.

Presently Rodin looked up. "Marn is a bright specimen, no doubt," he said, "but he went a little too far when he implied that our knowledge of meteorology would not be helpful here. There are plenty of ways to alter climate in any direction you please, and some of them must be applicable to this planet. Of

course, we want methods which will require the use of plenty of heavy machinery, so that we can sell them the equipment; but that doesn't narrow the field much, when one is working on a world-wide scale.

"The problem works down to a reasonably simple root. With a given solar constant, there are a number of things that can happen to the incoming energy. A certain percentage is reflected, and a certain percentage absorbed. Modification of that ratio offers one means of climate control; that, in effect, is what we suggested to Marn. It may yet be possible, but the nature of R Coronae's radiation makes it difficult.

"If you take the absorbed energy as it is, the next point is distribution. Currents in the atmosphere and hydrosphere normally take care of that business; and both of those are subject to interference and consequently to control. Ocean currents, of course, are easier to direct; and it might be worth while to examine more closely the distribution of land and water areas of this planet, with that thought in mind. Distribution by air currents is modified by the height, friction values, existing temperature, and Heaven knows what other characteristics of the land over which they flow; that's the sad fact that makes meteorology more of a nightmare than a science, at times.

"I should say that redirection of ocean currents offered your best bet; we can try it on Marn, anyway. It will depend a lot on Hekla's geography, but he will realize that as well as I and will be able to pass judgment. That's the best I have to offer at the moment."

At least, Vickers realized, there was still hope even from his point of view. The construction work that would be required by such a plan meant plenty of heavy machinery. He agreed with Rodin on the subject of working the plan into the next conversation with Marn.

The Heklan readily agreed to show Rodin something of the geography of his world, when the meteorologist put the question up to him. He left the Earthmen for a moment, and returned with a heavy book, which proved to be an atlas. Inside

its front cover was a folded leaf which opened into a map, several feet square, of the planet. It was on a projection similar to Goode's homalosine and showed the entire surface of the world; but only afewscattered areas in the arctic and antarctic regions showed anything like the detail displayed on the settled, tropical islands. The Heklans had done little exploring of their own polar caps; Marn said that such regions as the maps showed in detail were in the neighborhood of meteorological stations similar to the one on Observatory Hill.

Rodin, however, was not particularly interested in the polar caps. He examined closely the sea which extended entirely around the globe in the equatorial regions, broken only by the large islands and archipelagos on which most of Marn's race dwelt. In both the northern and southern hemispheres there lay enormous continental masses divided by relatively narrow arms of sea; and the more the meteorologist looked at these, the more confidence he felt in the practicability of diverting warm currents up those arms.

"I see that you have settlements near the equatorial coasts of these land masses," he finally said to Marn. "Why is it not possible to spread further inland?"

"The extremes of temperature in the continental interiors not only make settled life there impossible, but cause violent and uncomfortable weather at the coast settlements and on the nearer islands," was the answer, as Rodin had expected. "The polar caps never melt entirely down to the ground over more than a tiny fraction of their area. They are too thick; and any gains made in the warm seasons are lost in the cold ones—quite evenly; the planet has reached a state of near equilibrium in that respect. It is unfortunate from the point of view of living space requirements; but I hate to picture the results of a major change which would interfere with that stability."

"Why should that be serious?" asked Rodin. "I had been considering that angle ever since our last talk; and it seems to me that sea walls could be designed to deflect the currents which now run around the planet in the equatorial ocean, into these

arms of the sea which reach up between the continents. If this were done, it should result in an earlier melting of the ice to the east of the water, permitting the bare ground to absorb more radiant heat. That should gradually operate to get you ahead of the melting-freezing cycle, and the new equilibrium point should give you a good deal of livable land space."

Marn appeared interested.

"Could you go into a little more detail on that plan? I should like to hear how completely you have been able to handle the situation."

Rodin bent over the map, and began to indicate what he considered the best location and design for the sea walls, working as well as he could from a memory of the current-control installations on Vega V. Marn was unable to give him much data on ocean depth, but that was not too important. The coasts of the continents involved had a more direct bearing on the situation, and Marn was well informed on their nature. Rodin once more began to feel hopeful. He finished his exposition with the words, "If you feel that the undertaking is practical, any or all of the peoples of the Federation will be glad to help you with experience and equipment."

Marn did not answer for several moments, and the expectations of the Earthmen mounted with each second of delay. They should have known better by this time.

"It is a well thought out program; better planned, I think, than your first," the Heklan finally said. "Of course, you are under a handicap in that you are so completely ignorant of Heklan conditions. Your ingenuity and evident experience, however, have started me hoping that perhaps some of your Federation scientists could perform this feat, which seems to me impossible. I hope you will present the problem to your colleagues of the Federation, and that some of them will see fit to give their attention to the matter." He paused, as though to give Vickers a chance to translate this speech; but before the man could do so, he appeared to have a further idea. "I think it would do no harm to let my people know of your presence, Vickers," he said.

"I am sure they would be fascinated by the possibilities you have unfolded to me; and I don't believe your reason for wanting secrecy is valid any longer."

Vickers found himself in the hot part of a pincer movement, and thought furiously as he translated Trangero's speech to Rodin. "I guess we can let him broadcast if he wants to," he concluded, "but please do some fast talking on this weather business. He hasn't told me why your sea walls won't work; just takes it for granted."

"I don't believe he would tell me; and I believe it would work," answered the meteorologist. "He's keeping something up his sleeve, and we'll never worm it out of him. I think we'd better get out of here, and take a little trip. That would give us a chance to check my idea for ourselves—he's quite right in saying that I don't know enough about this planet. It might also present us with a better opportunity to do our work than this weather station seems to offer. Why not let these fellows announce our presence, and use the occasion to make a tour of the planet?"

Vickers could think of nothing better, and Marn seemed agreeable. So did Serrnak Deg, when the matter was broached to him. And so it was that the little lifeboat rose from Observatory Hill on what proved to be one of the most trying journeys either man had ever made. Serrnak Deg and Marn Trangero watched the sliver of metal vanish to the south; then they looked at each other, with almost human grins wrinkling their grotesque features. They left the tiny platform from which they had been watching, and entered the elevator. Marn got off at the level on which his office was situated, but Deg went on down; and Vickers would have been interested to note that the Heklan proceeded directly to the room from which the Earthman had been so carefully kept.

But Vickers had no opportunity to note this fact. He watched the cumulous banner above the hill fade into the haze astern; and when it was out of sight, he gave his attention to the

landscape unfolding below them. It seemed a sufficiently pleasant country, of forested hills and open plains; but a close inspection of the forests showed great tree-ferns and fungi rather than normal trees, and Vickers knew that in Hekla's ten or twelve years of winter even this coastal strip was a howling, blizzard-racked desert of snow and ice; and just out of sight to the right as they followed the seacoast southward was the remnant of a giant ice cap where the heights were still snow-capped even at this season.

Rodin was only moderately interested in the view, until the coast began to curve gently westward. Then he began to make careful checks, using one of the maps he had obtained at the weather station. Several times he lowered the ship to the water, checking its depth and temperature; frequently he cruised as low as was safe among the hills and above the trees, examining Vickers knew not what characteristic of the planet's surface. The meteorologist's pile of notes and computations grew in thickness, while Vickers did little save look on and enjoy himself.

Southward they drove, breaking away from the coast and moving far out over a broad stretch of sea, until the geodet told them they were nearly above the equator; then westward, still dropping occasionally for Rodin's perpetual measurements, over more water, interrupted at times by islands. Twice they saw what were evidently Heklan communities; each time they were small, but each boasted a landing strip similar to, but much longer than, the one on Observatory Hill. Several winged aircraft were parked in the open near each strip, and a single machine, similar in exterior design to the terrestrian lifeboat. Vickers was curious about its method of propulsion, since the Heklans were without atomic power, but he did not bother to descend to investigate.

For ninety hours they chased the sun, veering far enough to right and left to examine the near shores of most of the continental masses. Each time they did so, Rodin expressed greater confidence in his plan; and as the geodet told them that they

were again approaching the longitude of Observatory Hill, he swung the ship northward, prepared to argue its merits to the limit.

Vickers took over the controls for a time, to let the meteorologist straighten out the last of his paper work. It was a token job, since the automatic controls were holding the craft on course and at a constant pressure altitude. They were cruising at a very moderate speed, since Rodin wanted time for his work; they were, Vickers calculated, about an hour and a half from the observatory. The usual layer of haze was overhead—thicker than normal, Vickers decided; the red sunlight pouring through the upper ports seemed less intense than usual.

He did not see the clouds until they were less than twenty miles ahead. It was the first extensive cumulus development he had seen on Hekla, and he debated calling Rodin; but he decided such clouds could not be too unusual, and failed to do so. He simply sat and watched the wall of vapor grow more distinct as the little ship approached it. It extended as far as he could see on either side and—up. An airplane pilot of an earlier century would not have come within miles of that angry black barrier; Rodin might have decided to go over it) but Vickers let the automatic controls carry the tiny machine straight into its heart. Even then, if the altitude control had been connected to the radio altimeter, no harm might have been done; unfortunately, Vickers had tied it in to the atmospheric pressure gauge, in anticipation of reaching land.

The initial turbulence made no impression on ship or occupants; but five seconds after the sun had faded from sight the ship stuck its nose into the low pressure of an updraft, and Vickers left his seat. For several seconds he was dazed by the force with which his head struck the ceiling. In those few seconds the ship lost six thousand feet of altitude as the automatic controls sought a level of pressure equal to that at which they had been set. Before they succeeded, and before Vickers could regain his feet and the manual controls, the updraft was passed; and

he was pressed helplessly against the deck as the ship plunged upward again. As it slowed, he seized the back of his chair and tried to brace himself against the sickening motion. For a moment he was partially successful, and he dared to let go with one hand in order to reach once more for the controls. As he touched them, there was a violent sideward lurch; and his hand, instead of striking the toggle controlling the altitude mechanism, opened the bar switch handling the sensation currents from the attitude gyros on the automatic pilot.

The ship could not have been out of control more than three or four minutes altogether; but those minutes were more than enough. Without the gyros, she no longer held an even keel, but pitched, yawed, rolled completely over again and again, still striving to follow the dictates of the altitude control. That barometer was sensitive enough for control in the upper stratosphere of planets like Earth and Thanno; and in the tremendous pressure changes accompanying turbulence in Hekla's dense atmosphere the little device went mad. Vickers, dazed and bleeding, bouncing from floor to ceiling and wall to wall of the control room, finally managed to hold on to the board long enough and firmly enough to set the selector at zero pressure. Still bucking and rolling, the ship went shooting upwards, and at last broke out into the crimson sunlight—more than thirty kilometers above the ocean, if the radio altimeter could be believed. The air was calmer here, and the ship quieted down enough for Vickers to level it by manual control, reset the toppled attitude gyros, and cut them in again.

With a steady deck once more under his feet, he staggered back to the library where Rodin had been working. The meteorologist had taken a beating, but had suffered less damage than Vickers, owing chiefly to the fact that the library furniture was for the most part heavily upholstered. He made acrid inquiry into the cause of the disturbance, and was not particularly sympathetic with Vickers' injuries. They went forward to the control room together, and Vickers gazed through the port at the innocent looking, fluffy pink mass below them while Rodin

applied antiseptic and dressings to his contusions. When he had finished this job, the meteorologist began to observe, too.

Vickers had halted the ship when he had regained control, and they were hanging motionless above the wall of vapor. They were still in sight of the edge where they had entered it; and when Rodin set the ship in motion again they ran within a few minutes into an almost equally sharp termination on the other side. The front was only thirty or forty miles wide; and this, together with the altitude of the cumulous barrier, indicated a frontal slope that made Rodin whistle. Then he stopped to think; and the more he thought the less he was able to understand how a mass of cold air of such size and, apparently, extreme low temperature, could have wandered so far from the pole in midsummer. Then he remembered the violence which had resulted from a very slight temperature change, during the warm front he had watched at Observatory Hill; and he took the ship down on the cold side of the front to the altitude at which they had been flying when they ran into trouble, and compared temperatures. The difference was not great, but it was far greater than had been the case on the other occasion; and considering the density and other peculiarities of Hekla's atmosphere, it could account for such a violent front. It remained to account for the air mass. Rodin began to think out loud, as he considered this problem.

"This stuff appears to be of polar continental origin, judging by its temperature and dryness," he said. "It's not extremely cold, but in Hekla's atmosphere it could still have formed over the polar ice cap, and probably did. On Earth, such a mass couldn't come anything like this far south in summer. The normal surface circulation is too strong for it, and remains too strong as long as the ground is receiving much solar energy. However, it could be forced down like this if we supposed another, still colder, mass to the east of its source region, against which it was carried by the normal trade circulation and thence deflected southward. Also, a general cooling of the continental

areas to the south of the source region might permit it to be carried down here around a normal cyclone.

"Either supposition demands a decrease in ground surface temperature comparable to that experienced at the onset of winter. I can't imagine any large area waiting until this late in the summer to become covered by snow; but I can't see any other means of dropping the temperature of a large area to any great extent, unless the axis of the planet shifts enough to decrease insolation in this hemisphere." He grinned wryly as he made that remark; he realized perfectly well that the application of sufficient force to shift the axis of a major planet would buckle its crust at the very least, and more probably disrupt the world.

"How about night cooling?" asked Vickers. "This planet rotates more slowly than Earth."

"Not enough; in summer the nights are short anyway; and why would it wait until now, fully two Earth years after midsummer, to take effect?"

"Then how about this mist that seems to have been cutting off some of the sunlight of the last day or two? You must have noticed it—it appears to be above any level at which we've flown, so it can't be very dense; but it seems to be practically planet-wide, and cuts off enough light for me to notice without instruments."

"I hadn't noticed it particularly," said Rodin thoughtfully. "A high layer of water vapor or dust would have a blanketing effect, and would actually increase surface temperature, even though it cut off some visible light. However, there's something to the idea; the stuff might just possibly have a high reflecting power, I suppose. It won't hurt us to go up and find this layer, anyway."

Rodin went back to the controls, and started the ship climbing slowly. Then he started the recorder of the radiograph he had set up at one of the portholes when he had first arrived, and waited while they rose through the thinning at-

mosphere to a level at which the outside pressure was no longer detectable. There he stopped ship and recorder, and removed the graph from the latter. The haze layer, if it existed, should have betrayed its presence by a more or less sharp break in the curve—or rather, a change in its slope—at the proper level; but Rodin, to his disgust, was unable to find anything of the sort by visual inspection. He was beginning to check the instrument for flaws that would affect its sensitivity, when Vickers remarked that the sun seemed still to be rather weaker than usual—rather as Sol would appear from Earth during a partial eclipse, allowing for the difference in their intrinsic luminosities.

"An eclipse?" queried Rodin. "Hekla has only two satellites big enough and near enough to produce a respectable eclipse; and even the partial phase would only last a few hours. You noticed this dimness a couple of days ago."

He went to the port and looked up at the sun. From Hekla's surface the human eye could bear to look directly at R Coronae's immense disk, but here above the atmosphere it was a little too bright for comfort. He rummaged in a drawer under the control panel, found a pair of shielded goggles; with these he approached the port again, and looked long and earnestly at the fuzzy crimson blot hanging in the blackness of space. At last he called Vickers, gave him the goggles, and asked him to look, describe, and if possible explain what he saw. Vickers obediently donned the eye shields and went to the port.

He had seen red giant suns before—who hasn't? He was familiar with the brilliant crimson or orange disks, with brightness fading rapidly toward the ill-defined edges, bordered by a faintly luminous rim of atmosphere that faded rapidly outward against the star-shot background of the Galaxy. R Coronae should have been the same.

Perhaps it was, he thought at last. Perhaps it did have a normal disk; but he couldn't see it—at least, not all of it. The lower quarter was visible, fading as it should and equipped with a normal atmosphere rim. A short distance up from this lower edge, however, a black line was etched across the crimson,

projecting on each side. Where it appeared against the background of space, it glowed very faintly red. Above the line the stellar disk was hidden almost completely, as though by a cloud whose edge was represented by the border of black. The cloud, if it was a cloud, apparently grew thinner toward the top; for the upper side of the disk was faintly visible through it. Vickers slid the goggles up on his forehead and took a quick look at the sun without them. He could see the foggy disk, and was just able to make out the dark line. Evidently the "cloud" actually cut off less light than the view through the shields indicated; but if, as it appeared, the appendage were attached to the star rather than to Hekla itself, a drop in temperature was not very surprising. He turned away from the port and addressed Rodin, who was waiting impatiently.

"If clouds are possible in a star's atmosphere, I'd say you had something on R Coronae quite similar to this cold front of yours right below us," he said. "If it happens very often, I suppose it's the explanation of the star's variability." He made this statement, so staggering to the meteorologist, in such a matter-of-fact tone that it was several seconds before Rodin could find voice. Finally he half-spoke, half-choked:

"You . . . you mean you have known all along that this star is a variable, and didn't think it worth while to tell me? You mean—" he sputtered, and lost voice again; and Vickers realized that the color of his face was not entirely due to the sunlight.

"Of course I knew it was a variable; didn't you? Most of the red giants are, to a slight extent, but it doesn't particularly bother the planets of Betelgeuse and Antares. I remembered that, and looked up this star in the type index before we arrived. It gave a C. I. and size about the same as the giants I mentioned, and was marked 'V' as they were, so I supposed it was the same sort of business here."

Rodin did not answer, but turned on his heel and strode back to the library, Vickers close behind. He found the index

Vickers had used, checked its source of information, and located the indicated volume on the shelves. He thumbed through this for a moment, stopped, and read silently for a minute or two; then he handed the tome to Vickers and indicated the proper section. Vickers read, and slowly understood.

" 'R Coronae Borealis is the name-star of a group of suns characterized photometrically by a light-curved of the form shown, and spectroscopically by the presence of strong carbon indications. It was suggested long before interstellar travel was achieved that the light variations were caused by temporary condensations of carbon vapor in the stellar atmospheres; and the correctness of this assumption was shown in the excellent series of photographs made by the Galactic Survey ship *Zenith*, which follow the formation of masses of carbon clouds through a full cycle from the beginning of condensation to complete dispersal. The actual mechanism and processes involved have not been closely studied, but it has been suggested that such a study should be conducted by a composite board of astrophysicists and meteorologists, as the phenomena seem to bear strong resemblance to those of planetary weather.

" 'The *Zenith* noted the presence of two planets in a cursory photographic sweep of the R Coronae system, but they were not closely examined, nor was the possibility of the presence of others eliminated.' "

Rodin nodded slowly as Vickers finished his reading.

"You called the shot very nicely a few minutes ago," he said, "when you called that black line a cold front. I should say that you were one hundred percent right. Blast it, to be a meteorologist in this system I'd have to know more astrophysics than a lot of Federation professors. You've certainly let me make an awful idiot of myself in front of those Heklans."

"Do you really think so?" asked Vickers seriously. "I don't see how they could expect you to know any better. You're a meteorologist, not an astronomer, as you said."

"On this planet, the distinction is probably narrow to the point of invisibility. Their weather men would *have* to be first-

rate solar physicists. I must have seemed to them like a self-opinionated, bungling, incompetent—insisting time after time on the feasibility of a plan whose greatest flaw would have been obvious to a Heklan layman. I don't want to go back to that station, Alf—I couldn't face one of those people now."

"I'm afraid you'll have to," replied Vickers. "I sympathize with you, and am extremely sorry for your sake that it turned out this way; but from my point of view it's the best thing that could have happened. I hoped for something good to eventuate from your visit, but I didn't dare hope for this much."

Rodin's interjection at this point was of an interrogative and profane nature. Vickers smiled slightly, set the ship in motion once again toward Observatory Hill, and began to explain.

"I told you at the time of your arrival," he said, "that I feared I had unwittingly aroused in our hosts a fear of the competitive aspects of our Federation culture. That was quite true and correct, so far as it went. There was a little more than that to the situation, however. The Heklans had appreciated a still more fundamental fact about us. With interplanetary and interstellar travel, an already existing and working form of interworld government, with our knowledge of space and time and matter which cropped up occasionally and inevitably in my conversations with Serrnak Deg, it was glaringly obvious to them that our civilization was materially far in advance of theirs; that their achievements, compared to ours, were childish. As that realization sank in, they began to react in a fashion too painfully human not to be recognized.

"If something weren't done about that reaction, Hekla would not only refuse the minor dealing with us such as our attempt to sell them metal and machines represents—they would, for their own protection, refuse to have anything whatever to do with the Federation and its component races. You know what has happened on other planets when a culturally and mentally inferior race was forced into contact with their betters. They died out, rapidly, and the cause was not deliberate exter-

mination. In many cases, strenuous efforts were made to preserve them. Such things happened on Earth long before man left the planet; and it has happened all over the Galaxy since then.

"The Heklans are not our mental inferiors; they are intelligent enough to recognize a danger which must have been completely new to them, and to act on it in the only possible way—although that way is not a very good one, even from their own viewpoint. They may get rid of us, but they would have a hard time forgetting us."

"Are you sure they recognize the danger?" interjected Rodin.

"Reasonably sure; and even if they don't, it is none the less real—*and our making fools of ourselves is just as good a cure.* We showed them a field—probably not the only one, but certainly the most obvious—in which they are not merely our equals but have advanced far beyond us. We showed them in a way that will penetrate—their sense of humor seems to be as well developed as ours; and we showed them at the relatively minor price of your reputation—and mine, of course." The last phrase was an afterthought inspired by Rodin's attitude. The meteorologist calmed himself again with an effort, and asked a question.

"When did you realize what was happening to them, and what led you to that belief?"

"After my first long conversation with Serrnak Deg, I started to return to the ship alone. By an error, I stopped the elevator at the wrong level, and saw a room full of electrical machinery. I am not a scientist, but I think I know a teletype keyboard when I see it. Before I could see more, I was hustled out of the room. When I got back to the ship, I spent quite a while searching the frequency bands we have found practical for communication. I heard nothing, and yet the station was obviously in constant contact with the rest of the planet—even I know that a weather map can't be kept up to date otherwise. Disregarding the remote chance that they had either medium

transmitters or a means of radiant communication undreamed of by us, it seemed obvious that the station was actually connected by metallic cables with other centers of communication. The method is primitive as even you will admit; why should they conceal the installation from me, if they were not ashamed of its simplicity?

"Later, when they showed us around the station, and failed to hide any of the other primitive equipment such as internal combustion engines, I was sure they had decided to give up the attempt to conceal the inferiority they felt in the face of our apparatus. Deg had visited the lifeboat by then, remember. They were planning then, and must have been planning until we started this trip, to break with us completely.

"You can see why I didn't tell you this before. I'm not sure I should have told you now, because it will be necessary for you to go back to that station and not only admit your ignorance to Marn and Deg, but put the capping stone on the business by asking for enlightenment. I hope you have the intestinal fortitude to do it."

Rodin smiled wryly.

"I guess I can't let you down, since you've gone this far. Perhaps I can make up the face I've lost here by staying a while, learning some Heklan meteorology, and publishing a few papers for the benefit of the rest of the Galaxy. I can be the first *non*-Heklan stellar meteorologist, anyway, which ought to have some weight with my beloved colleagues. All right, Alf, I'll try it."

Vickers nodded and smiled slightly, as he altered the course slightly to bear toward the cloud banner of Observatory Hill, now vaguely visible in the distance.

"I was sure you would. After all, reputation or no scientific reputation, you have a job for which you get paid, same as I. Just don't lose any chance of building up to the Heklans the importance of their contributions to the meteorological knowledge of the Federation races."

"I won't," answered Rodin, "and it won't need much of my help. They really have something that will drive some of my friends wild, and will probably rock the astronomers slightly in their seats.

"But speaking of jobs, you also have one; and how does your proving to all concerned that it is impractical to work on Hekla's climate fit in with a program supposed to sell large quantities of metal?"

Vickers set the ship gently down on the ramp before turning to face his friend.

"That was solved some time ago. My motives in assuring successful relations with this race were not entirely humanitarian, though of course I don't regret the good I'm doing. My personal problem, of sales, was solved long ago, as I say; but without any Heklans the solution would be somewhat impractical. Hence the call for your invaluable assistance. Tell me, Dave, what you do if the landlord won't repair the air conditioner in your apartment?" He smiled at the look of comprehension on the other's face. "Of course. Granting the availability of other quarters, you move.

"There are certainly other quarters available for the Heklans, even if they are restricted to the systems of red giant stars; and the Federation can undoubtedly find a number of suitable worlds in a very few years, even if they are not already known.

"Any race that goes in for colonization in a big way, Dave, is going to need spaceships in considerable numbers; and I am sure that Belt Metals will be only too glad to provide them. In fact, I think we might both draw a very comfortable bonus on such a transaction; and I plan, at the first opportune moment, to put the proposition to Serrnak Deg."

Vickers rose from the control seat, touching as he did so the switch that opened the inner air lock door.

"I think that covers all the problems of the moment," he said, as he struggled into a heavy jacket. "Now come on into that station with me, Dave. I want to see you eat humble pie!"

Murray Leinster

THE PLANTS

The dominant life form on an unexplored planet couldn't be discounted, even if it were just a pretty flower.

THE PLANTS ON AIOLO GREW by thousands and millions and hundreds of millions over the wide flat plains of the planet. It was not a very luring planet, perhaps, but the plants knew no other and they were content. They were all alike. Every one was a flower with a singularly complicated center and a wide collar of white petals. It grew four feet high upon a reedy, seemingly flimsy stalk. Up at the top, just under the blossom, there was a furry thickening of the stalk for about six inches. This thick part was asymmetric, with lumps here and there as if the organism within it were far from simple. It was. The plants spent most of the daylight hours gazing at Aiolo's tiny, blue-white sun. Now and then, though, they turned from it to regard each other or any singular occurrence that might take place. But there were not often any occurrences because there was nothing on Aiolo but the plants. Literally nothing. No animals. No birds. No insects. And the plants were all alike. They were not only the dominant species on Aiolo, they were its flora and fauna and everything else.

But one day there came a screaming, far away in Aiolo's thin air, and out of the purplish sky a dark object came hurtling horribly. For a time it traveled almost parallel to the ground, but gradually it descended, struck and bounced upward like a skipped stone, struck and bounced again, and then struck a third time and ploughed a monstrous furrow in the soft earth for a quarter of a mile before it stopped. It killed thousands of the plants of Aiolo in its plunging.

After it was still for a long time, four men came staggering out of gaping rents in its plating and gazed dazedly about them. And all the plants within view turned their faces to regard them curiously.

Hours after their landing, the four men built a campfire in the great furrow dug by the *Copernicus'* shattered hull. They brought out shattered burnable litter from the ship's interior to use for fuel, because, of course, the plants would not burn. As they cooked, the sun sank abruptly and the formerly faintly-visible stars came out with astonishing brilliance. The only light anywhere on the ground was that of the campfire. The flames licked high and burned with more than ordinary brightness. The atmosphere of Aiolo was only five percent nitrogen, and despite its thinness men could breathe without air tanks, and fire could burn.

The men moved about the fire with stiff and painful motions as if badly bruised and shaken. Around them the round flower faces turned toward the flames or the men or both. They made an effect of innumerable marveling listeners. The men had found their stalks too tough to be readily brushed aside, and they camped in the cleared furrow for convenience.

"After thinkin' it over," said one of the men ironically, "an' even allowin' for the fact that we're still alive, I still say we're in a fix! Slade musta been crazy!"

A second man—Caxton—said meditatively:

"No-o-o, Burton. He planned it too carefully. Some of his explosives must have been set before we left port. And he pushed off in the lifeboat before they went off. They were exactly calculated to wreck the *Copernicus* from stem to stern. He had some scheme in mind, but just what—"

"It was just murder!" said Burton stubbornly. "He was a killin' lunatic. There were forty-eight men in the ship, countin' him. Forty-three of 'em died right off. We shoulda died, too. He just meant to kill everyody. What'd he gain by wreckin' the old ship fifty light-years from anywhere?"

A third man, Palmer, said heavily:

"There's twelve million stellars worth of iridium on board. If he figured he could get away with that somehow— He might figure on coming back to loot it. He'd have the *Copernicus'* course and speed."

"Yeah?" said Burton scornfully. "How'd he reach any place to come back from? All he had was a lifeboat! An' what'd the ship's course an' speed be by the time he did get back?"

Caxton nodded.

"I agree on that, Burton. If you don't find a wreck pretty quick you don't find it. But still I think Slade had some scheme in mind. He wasn't just a maniac killing people. A maniac likes to see people die, and he left hours ahead of time."

They ate as they talked, but the food was not really cooked. The boiling point of water in the thin air of Aiolo was well below two hundred and twelve Fahrenheit. The food was hardly more than well-warmed, save where it was burnt. The coffee could be drawn straight from the boiling pot without scorching one's tongue.

Presently they fell silent gazing into the fire. Their situation was completely without hope of betterment. The hull and drive of the *Copernicus* was shattered far past patching. The ship's fuel was gone to the last ounce. The wrecking of the ship in midspace had been a triumph of ingenuity and skill. At one instant the freighter had been droning along comfortably at cruising speed on overdrive, taking a direct line between Algol IV and the Briariades. And then, without warning, there was one shattering explosion, then two more, and then a monstrous blast which seemed like the end of all things. Within seconds the *Copernicus* changed from a well-found, space-worthy vessel to a riddled, airless, powerless hunk, its overdrive off, and therefore next to no forward velocity.

The four men beside the campfire on Aiolo were the only survivors beside the man who had set off the blasts by machinery. They had happened to be off watch in the only two com-

partments of the ship which were neither cracked open by the explosions nor emptied of air by the jamming of self-sealing doors. Their situation had seemed hopeless then.

Even now it was hardly better, though something like a miracle was responsible for their being still alive. No possible astrogator could have calculated a landing such as they had made, nor could any wreck have grounded approximately in one piece on any planet less featureless than Aiolo. The derelict had hit the atmosphere traveling west to east at the flattest of conceivable angles. Morever, it had overtaken the planet in its orbit so that both orbital speed and the speed of rotation could be subtracted from the relative motion of hulk and planet. It had hit within an impossibly small margin of the incredible, at a rate which would allow the atmosphere to slow it without burning it up, and at an angle which allowed it to reach ground like a skipping stone. It bounced twice, ploughed a huge ditch in soft earth, and came to rest.

But the four men who still survived the shaking-up were in no enviable position, at that. They were marooned on Aiolo, which had been visited by men exactly once before in all galactic history. They had no hope whatever of ever leaving it. And their situation was the work of a shipmate who had caused it and then set out, seemingly, to travel fifty light-years in a lifeboat powered for seven.

The night grew chill, even beside the fire. It would be horribly cold presently. Horribly! But in the bright starlight the plants stayed erect and the flowers open, their round faces staring at the fire and the men.

"We might as well turn in," said Caxton presently. "We'll think of something we can do, sooner or later."

The statement was a lie. There was nothing to think of but endless chilly days and endless frigid nights to come, on a planet on which every square mile seemed to be exactly like every other square mile. They would live here, and grow old, and die. Perhaps in a thousand or a million years another cosmographic expedition would land on Aiolo and find the rusted

wreckage of their ship. But that was all they could look forward to.

They had sleeping bags ready. They crawled into them and zipped the flaps shut. The fire died down and died down—

Starlight shone on the broken hulk, and on the four sleeping bags; and on the plants. The flowers stirred subtly. They made tiny, quite imperceptible sounds. Presently those nearest the gouged-out furrow leaned toward the sleeping men. They drooped in tiny jerkings; not at all like the smooth movement of muscle, but they moved. Three of the four men were far beyond their reach, though the nearest flowers strained toward them, but Caxton had happened to sleep with his head quite near to undisturbed ground. Hannet was fairly close to some flower stalks, and one leaned far over and out to approach him, but it could not. Half a dozen or more, however, could hover over Caxton. Their blooms bent down and bent down until they almost touched the cloth of the sleeping bag above his head.

Beyond that, nothing happened at all. When dawn broke and the men waked, the flowers were all erect again.

But, next morning, as the castaways prepared their necessarily half-cooked breakfast, Caxton said suddenly:

"Look here! Slade left the *Copernicus* with fuel for at most seven light-years. It's fifty to the nearest inhabited solar system. We thought he was crazy! But—where are we?"

"Right here," said Palmer gloomily. "And likely to stay, too!"

"Well then—where'd Slade be if he had sense?"

"If he had sense," snapped Burton, "he wouldn't ha' wrecked the ship. But if he wanted to stay alive—"

Then Burton stopped short, his mouth open. Palmer swore suddenly. Hannet growled.

"He'd be here, too," said Burton angrily. "He'd have made for this place and landed! He's somewhere on this planet!"

Caxton nodded. His expression was queer.

"It came to me in my sleep," he said slowly. "I had odd dreams, all mixed up with these flowers. Somehow I had a feeling in my sleep that they were telling me Slade is here. But it makes sense."

He looked uneasily at the flowers, all of which seemed to regard the man and the hulk of the spaceship with a round-eyed curiosity. It was particularly odd that all of them faced the men, because some were on the north and some on the south and east and west. The ground went on to the horizon, completely flat and completely monotonous. As far as the eye could reach, there was nothing in view but these flowers. They were all the same variety. There was no grass underfoot. They were spaced without regularity, but with an amazing equality of space between them.

"Flowers told you? Huh!" snapped Burton. "But that's it, all right. He smashed up the ship and landed here and—"

Again his mouth dropped open.

"But he couldn't ha' figured the ship 'ud land here," he protested. "Nobody coulda calculated the landing we made!"

"Hardly," said Caxton. "No matter how fine his adjustments were, he couldn't time his explosions to make us crack up on Aiolo. He could know, though, that he'd make it in the lifeboat."

"But who'd want to make it here—"

Caxton looked at the flowers speculatively.

"Maybe he had friends waiting." He paused. "There's that twelve million stellars' worth of iridium in the ship, yonder."

The four men looked at one another. One of them got to his feet and swore at the aches and pains which beset him. He went into the ship while Caxton went on evenly:

"Nobody can pirate a ship in space, on overdrive. You can't find it! And nobody can be kept from going on overdrive if he's scared or suspicious. So there's never been real piracy in space. But Slade smashed the *Copernicus* close to this planet and this

sun. He made the ship a hopeless wreck, and went on to join his friends. They'll have a ship, and they'll wait with detector screens out for a derelict to float past—"

Then he got up and dived into the interior of the ship. He entered through a great rent in her plating. There was one huge tear where thirty feet of her inwards were exposed to view. There were sudden, violent crashings inside the hulk.

Caxton came out again, very pale. The other man who'd been inside came out with three or four quite useless objects in his hands.

"There was a Bridewell automatic sender in action," said Caxton briefly. "That would have helped them find her! I smashed it, but probably too late."

Palmer said bitterly:

"I went lookin' for somethin' to fight with. All I could find was torches." He threw them disgustedly away. "Weldin' torches against guns!"

Hannet growled:

"We don't have to hang around to be killed, of course. They wouldn't bother to track us—but they'll know somebody lived through the crash. They'll prob'ly bake the ship just to make sure—"

The four men clenched their hands. It was bad enough to be hopelessly marooned upon a planet inhabited only by flowers with an irritating habit of always staring at one. But it was infuriating to feel sure of the near presence of a ship on which they could return to humanity, save for the slight fact that the crew of that ship would murder them on sight to prevent it. It was most enraging of all to be unarmed.

"The most we can do," said Caxton, "is to hide the iridium. It won't do much good, but at least it'll bother them."

Burton stared around the featureless plain.

"Where you goin' to hide it?" he demanded sourly. "They could track us anywhere. Turn up any dirt an' it'd show from overhead."

"We might bury it in the furrow or under the *Copernicus*," said Caxton. "They'd expect us to cart it away. So we won't."

There was a sudden wavering motion of the plants about them. The flower faces turned, in small, jerky movements. They faced to the southeast. All of them. As far as the eye could see, every flower over miles and miles of plain turned and faced in the one direction—which was not the direction of the little blue-white sun.

Then, very faintly at first, there came a roaring noise far away. It was accurately in the direction toward which all the flowers had turned. It moved swiftly along the horizon, and all the flowers turned their blossoms in tiny jerks as it moved. When the roaring noise died out again to nothingness, all the flowers over all the plain were facing to the northeast.

"That's them!" said Palmer furiously. "Let's get that stuff hidden! Not that we want it, but so they won't get it!"

But Caxton was staring at the flowers. As he looked, with many tiny jerkings the blooms which faced away from him turned about again. And again the wrecked *Copernicus* and the four men were surrounded by staring flower faces, which watched them with an air of charmed attention.

The men set savagely to work to hide the treasure, for which the *Copernicus* had been wrecked, forty-three men murdered, and they themselves hopelessly marooned upon Aiolo.

Toward sundown, Caxton had an idea. He rummaged in shattered cabins until he came upon a tiny picturescope. Men who travel far afield in space have usually some personal pictures they like to look at from time to time. Picturescopes run off such records untiringly, without power supply. Caxton found one with a seemingly full record. He tucked it under his arm and walked off among the plants. It was amazing, once he was among them, to notice that though there was no pattern in their growth—they did not grow in rows or any recognizable arrangement—there was a strict and startling equality in the amount of moist bare earth about their stalks. Each one had as

much clear space as would roughly fill a two-foot square. They were not overcrowded. Each had an equal allotment of ground from which to draw its nourishment. And they had no competition. He bent down and fingered the soil. Its top was a closely-matted tissue of roots. There could be no erosion nor could there be any dust-cloud arising from wind blowing over such terrain.

He walked away from the *Copernicus*. Flower faces turned to regard him as he moved. He walked between the stalks, and every flower stared at him. There was a concerted movement to regard him. At a hundred yards from the ship, he could see that he was surrounded by staring blossoms. Even those in his rear had turned away from the ship to stare after him.

Two hundred yards away, he set up the picturescope and touched its button. It began to function. There were two children waving out of it—evidently the children of the murdered man to whom the picturescope had belonged. The scene changed, and a woman smiled and spoke. That went on for a space, and there was the interior of a living room, with the woman and the children moving about—

Caxton cast sidewise glances at the flowers about him. A few had turned from their fascinated contemplation of himself to look at the picturescope. Others turned twitchily as he watched. A blossom drooped jerkily to approach the screen. Others drooped to join it. They crowded to contemplate it. They almost jostled each other.

Caxton went back toward the wrecked ship. Three times he stopped to survey the scene behind him. The plants paid no attention to his retreat. Every one within hundreds of yards of the picturescope turned and faced it. Within ten yards, they drooped and seemed to strain toward it. Caxton reached the great furrow, his expression very queer indeed.

"These flowers are conscious!" he said abruptly, to the others. "They've got intelligence of a sort. Look at them looking at that picturescope!"

Burton said sourly:

"What good's that?"

There was a simultaneous movement of all the blossoms within sight. They stirred and by tiny twitching movements faced to the northwest. Unanimously. The men held their breaths. Presently the thin air brought them a faint, faint sound which was the deep-throated roar of a space drive in atmosphere. But it was very faint, and after only seconds it died away.

"They heard that before we did," said Caxton calmly, "or else they knew it—another way."

Then he looked where he'd left the picturescope. The flowers about it had straightened up and turned to face the inaudible sound. But as he watched, those about the busily working small machine turned again, and those nearest it dropped toward it until there was a small depression, about the picturescope, in the otherwise perfectly level field of flower heads.

The small white sun was very low upon the horizon. It drooped down and was not. Night fell. Hannet built up the fire with more litter from inside the *Copernicus*. Palmer began to cook.

"Slade's pals know the ship crashed, now," said Burton, seething. "They had trouble believin' it at first, maybe. Odds too big against it. But they know it now! And now they're huntin' it, cussin' because the Bridewell's stopped sendin'. They'll find us, though! They're quarterin'—"

Hannet said bitterly:

"And we haven't got a thing to fight with when they do catch up on us!"

Palmer snapped:

"You think we don't know that? Even if we go off an' hide, they'll know somebody was alive around here! So they'll bake the ship just to spoil our grub, an' there's nothin' to eat on the whole planet except what's in the ship."

Caxton said meditatively:

"I think we've got to ask for some help."

The others blinked at him. He waved his hand around, at the white-fringed flower faces now again regarding the fire and the men with an effect of captivated interest.

"These things are intelligent after a fashion. I don't know how intelligent, but—"

"Huh!" snapped Burton. "You're goin' to get a pack o' flowers to help fight off a gang of murderers?"

"I don't know," said Caxton. "But it's the only chance we've got."

Hannet grunted. Palmer said belligerently:

"What could flowers do—even if they had brains?"

He poured out barely-warm coffee and Caxton said:

"I don't know what they can do. But I can guess what they've done."

Men grunted skeptically.

"They've wiped out every other life-form on the planet," Caxton pointed out. "They haven't bothered us, to be sure, but we haven't bothered them. In landing, we killed a good many, but it was an accident. We couldn't help it. Maybe they know it. Anyhow they wiped out all competitors before us. There's no other sort of plant and there are no animals and not even an insect. You can't tell me there was never but the one line of evolution! These plants are highly organized. They're specialized! If they'd had no competition, they'd have stayed primitive. But they've developed to what they are because they did have competition which they've now wiped out! They've even arranged to divide up what's left among themselves. Every one has the same amount of space—no more, no less. They're the dominant race on this planet. They have senses—hearing, at least, and certainly sight, and I insist that I had those queer dreams of having the flowers tell me that Slade was here—and he is."

Burton snorted scornfully. The feeling of utter helplessness and hopelessness made all their tempers short. They would

be found tomorrow by the ship they'd heard, which was hunting for the *Copernicus* to loot it of twelve million stellars' worth of iridium. Forty-three men had already died for that iridium. Four more would die tomorrow because, whether the pirate ship killed them in cold blood, or merely turned a heat ray on the wreck and turned all their food to charcoal, they would die. Almost any argument would be maintained to avoid thinking of their infuriating helplessness.

"How'd those flowers fight animals, if there was any?" demanded Burton.

"How did men fight them?" asked Caxton. "Was there ever any single way? Men used their brains. Man specialized on intelligence, and became dominant on Earth. These plants may have done the same thing. At least they're dominant here!"

"O.K.," said Burton in heavy sarcasm. "Talk to 'em, then. Tell 'em we'll bring 'em a load of fertilizer if they'll wipe out Slade an' his gang so we can go home in his ship!"

"That," said Caxton meditatively, "is just about what I've got to try."

"Crazy!" rasped Burton.

"Quite likely," admitted Caxton, "but I can't think of anything with sense to it that gives us a chance."

The stars on Aiolo were very bright. The air was very thin and very cold. The men in their sleeping bags lay still, and the campfire burned brightly until there were only embers left, and those embers glowed with the brightness of coals in almost pure oxygen. One by one they went out, leaving only ash. But all the men were not in the gouged-out earthen furrow behind the shattered *Copernicus*. One man lay among the flowers, twenty yards and more from the ship.

It was easy to locate him, even in the starlight, though he could not be seen among the flowers. For many feet around him, every flower stalk was bent toward him. His sleeping bag was almost hidden by hovering blossoms—most of which were clustered as close as possible to his head.

The ground was utterly flat, and it reached out to a horizon utterly without break or projection. It was a monstrous plain, completely filled with the omnipresent flowers. Nearby one could see between white-petaled blooms to reedy stalks and stringy leaves below. But at a distance the absolutely level sea of blossoms formed a sheet of snowy white.

At what would correspond to ten o'clock in the morning, the look of the vast expanse of flowers changed. From one horizon to the other, the plants stirred. They moved in tiny jerkings. They faced in one direction.

"This will be it," said Caxton evenly. "They'll find us now."

There was yet no sign of the pirate ship, neither of sight nor of sound. Three of the four men clenched their fists, raging. They might be killed. They might be mocked and left to die. They were filled with an impotent rage at their inability even to offer battle.

Caxton waited with an odd expression on his face. A dull roaring came from very far away. It grew louder. It grew thunderous. They saw the spaceship as a tiny speck of light; a moving mote of brightness which was the reflection of the sun from its chromium-bright outer plating. They regarded it in suffocating fury. It went hurtling onward—and suddenly shifted its course. Its momentum carried it on, but it swung toward the crashed *Copernicus*. It turned again. It made a wide half-circle and headed back toward the wreck and the great furrow in the earth, descending as it came. It was a small ship, much less than the freighter it had come to loot. Concealed ports opened in its bow and guns peered out.

Caxton ran back in the furrow and waved violently, trying to cause it to land where there were no plants. It ignored him. One of the bow guns flashed briefly. An acre of flowers exploded in steam, and only blackened stalks and seared earth remained behind. There was a strange, tiny, extraordinarily shrill sound which ran all over the plain of blossoms, as if the flowers themselves had uttered it in rage or horror. All the way to the hori-

zon there was the seeming of commotion, of the agitated twitchings of reedy stalks.

The strange space vessel landed. It had the swollen, obese look of a space tug. It settled heavily upon the newly-charred ground. It was still. Then the gun muzzle swiveled. Another brief flare. Another burst of steam and thin shrill screaming noise. A path of charred emptiness opened from the space tug to the battered, broken wreck. Figures in spacesuits appeared carrying weapons. They walked negligently toward the *Copernicus.*

Caxton went to meet them. The first face he saw in a space helmet was strange to him. The second was Slade's.

"Hello, Slade," said Caxton coldly. "We figured you were responsible."

Slade grinned.

"Neat job, eh? How'd it miss you?"

"Cabin," said Caxton evenly. "Off duty. The self-sealing door worked."

"Any others?" asked Slade negligently. He raised a weapon very casually.

"Three," said Caxton. He added, "We hid the iridium."

Slade lowered the weapon.

"Yeah? What for?"

"To make a bargain," Caxton told him. "We want transportation to some place where we'll have a chance of being picked up. Promise that and we tell you where the iridium is. Otherwise—look for it!"

"We can get it outa you with a pencil beam," he said amusedly. "One thing I do wanna know, though. The flowers don't bother you. Why?"

"Why should they?"

"Maybe this's a different kind," said Slade. "Where we were waitin' for the *Copernicus* to come along, they made some kinda smell or somethin' that put a guy to sleep. That's why we got on spacesuits now. O.K.— Where's the other three?"

Silently, Burton and Palmer and Hannet came into view, their eyes sullenly defiant. Slade grinned at them.

"We came for the iridium," he said in mocking politeness. "I wanna volunteer to tell me where it is, or else the first one to take the pencil beam test. Who's gonna be nice?"

"I'll show you," said Caxton, without intonation. "It was silly to hide it, anyhow."

He led the way. He pointed to where they had dug deep under the *Copernicus'* plating to bury the precious metal for which their shipmates had died.

"Fine!" said Slade. "You men buried it. Now dig it out!"

Silently, the four men took shovels and began to dig. Slade stood over them with a blaster held negligently in his hand. Those with him explored the ship cautiously. They found no one else in hiding. They began to loot. One man carried a load of personal possessions back to the pirate ship, moving along the lane of charred, destroyed plants. Two men came back with him. More loads of loot. A shattered box of Bynarth lace had spilled half its contents in a broken-open hold. More men came from the pirate ship. The last three came without spacesuits, having been informed that since the four survivors of the wreck had had no trouble, there was no need of spacesuits here.

Caxton and his fellows unearthed the iridium. Twelve million stellars' worth. They dragged it out to the clear space of the furrow.

"Maybe I oughta make you carry it to my ship," said Slade, genially, "but a little exercise'll do my gang good. So—"

He lifted his hand weapon, grinning. It bore upon Caxton. His finger tensed on the trigger.

And that was all. He ceased to move. His eyes closed. He stood rocking on his feet, breathing heavily.

There was silence. Inside and outside the wreck there was stillness. Caxton turned his head and saw two men from the pirate ship, on their way back to it with loot taken from the *Copernicus*. They stood still swaying a little on their feet. There was no movement anywhere.

"All right," said Caxton coldly, "we'll load up the iridium. That'll be salvage, anyhow. Maybe we'll come back for the rest. Maybe not."

The four men began the transfer. When the last of the iridium was loaded, Caxton went back and took away the weapons from the seemingly paralyzed pirates.

Burton said furiously:

"Ain't you goin' to blast 'em off?"

"I promised not to," said Caxton grimly. "Besides, we couldn't. Slade had his finger tensed to kill me and he was stopped. We'd be, too."

Burton grumbled. Then he said defiantly:

"Whadda we do now, then?"

"Take off," said Caxton.

He went into the ship. Its entire company was outside. There were only the four survivors of the *Copernicus.*

The strange ship rose vertically from the ground. Caxton, in the control room, looked at the bottom visiplate. The wrecked spaceship below already grew small upon the screen, but the two blasted areas—in which thousands upon thousands of the plants of Aiolo had died—were still visible. And he saw moving dots. The men who had come to Aiolo in this ship, but now were left behind, marched somnambulistically toward the larger burned-out space in which the pirate ship had landed. But that space dwindled still more as the ship rose, until nothing could be seen at all except the illimitable expanse covered by the flowers—the plants of Aiolo.

"They're the dominant race of Aiolo," said Caxton doggedly. "It's as I told you. Like men, they specialized on intelligence. Men specialized on intelligence to tell them what to do. Men had hands to do things with. But those things were plants. They could only specialize on intelligence to tell other things what to do. To tell animals to keep away from them, for instance. They are tiny enough, and maybe the will power of a single one isn't enough to—well—hypnotize anything or any-

body. But when a whole field of them concentrates on telling something or somebody what they must do—why there's not much chance of disobeying them. Animals, in the past, were useful to them. They made the animals devour other plants—made animals clear ground for them to spread to. But when they'd spread everywhere, they had no use for the animals. So—"

"Huh!" said Burton, "They didn't bother us!"

"We didn't bother them," said Caxton dryly. "And the intelligence that can force itself on other minds hasn't much trouble extracting information from them. They knew everything we thought."

"But—"

"Surely they could have killed us," said Caxton irritably. "It annoys me to think how completely we were at their mercy! But they knew—from our brains—that our arrival was an accident. They knew we were the victims of others of our own kind. And somewhere on the other side of Aiolo, Slade and his gang had made trouble for the plants. He said something about the plants giving off a smell or something that put men to sleep. That was his interpretation. Actually, he and his gang had burned off aten-acre space simply to have room to move around in. He killed millions of the plants. They fought back the only way they could. But apparently a four-inch steel hull is a barrier to—whatever force a mind or minds can exert on others. They couldn't affect anybody inside the ship, and the more they worked on men outside the ship, the bigger the swathe of plants was burned down by the men inside the ship, to 'clear the air.' Naturally, the plants wanted to get rid of those men and of their ship, too."

"How d'you know all this?" demanded Hannet skeptically.

"The plants told me," said Caxton evenly. "Our minds are made to decide things. Their minds are made to communicate and command things. They could read our minds, but they couldn't communicate ideas—only commands—unless we were asleep, and even then only with difficulty. So I had to go out

and sleep among them for them to be able to tell me. We made what you might call a bargain—while I was asleep."

"Meanin'," said Burton, "you dreamed it! Huh!"

"Who's dreaming now," asked Caxton, "that we're on this ship headed for the Briariades, fifty light-years off, instead of waiting to die on Aiolo?"

There was no answer to that.

There was a blackened, empty space where a ship-mounted blaster had played, and there was a deep furrow where the *Copernicus* had ploughed horribly through soft earth as it stopped. But the blackened space was smaller than it had been. There were new small plants growing up, and tall, full-grown plants leaned strainingly far out beyond them to touch the ground at appropriate spots for yet other new plants to start. It would not be long before the naked furrow and the charred spaces would again be filled with growing plants. There was, to be sure, a curious mound at one place in that clearing—it had been men—and the wreck of the *Copernicus* would stand up above the flowers for long centuries to come. But the situation was well in hand. On the other side of the globe, too, a process of repair was in progress.

So that, with a return to normal quite definitely on the way, the flowers could spend most of their daylight hours gazing at their tiny, blue-white sun. But now and again they did turn from it to regard each other, and, of course, they would always turn to regard any singular occurrence that might take place. But there would not be many happenings, because there was—again—nothing on Aiolo but the plants.

E. M. Hull

COMPETITION

Business throughout the universe was complex, but the pattern was familiar—an able man still had his enemies.

THE FOUR MEN in the idling plane sat quiet now, watching. The debarkation of the space freighter from Earth was in full swing. People were packing out onto the landing platforms, carrying suitcases. One of the men in the airabout sneered:

"These immigrant freighters certainly pack them in."

The big man said, "That's why they call them freighters; they handle human cargoes—"

"Look, Mr. Delaney," a third man cut in excitedly. "There's a girl, a screamer if I ever saw one."

The big man was silent; his sleet-gray eyes narrowed on the girl who had paused twenty feet away. She had dark-brown hair, a thin but determined face and a firm, lithe body. She carried one small suitcase.

"She is pretty and does stand out," he admitted cautiously. His gaze followed the girl, as she turned and walked slowly toward the distant exit. Abruptly, he nodded.

"She'll do. Pick her up and bring her to my apartment."

He climbed out of the plane, watched it glide off after the girl, then stepped into a private speedster that instantly hurtled off into the sky.

Evana Travis walked along the Pedestrian Way toward the exit not even vaguely aware of the machineful of men that followed her. She was trembling a little from the excitement of

the landing, but her mind was still hard on the trip that had now ended.

She hadn't, when she came right down to it, utterly hadn't expected so much bigness. Figures never had had much meaning for her; and growing up in a world where people said, "Why, that's only a thousand light-years!"—somehow that had made of space an area as limited in a different way as Earth.

The very name—Ridge Stars—had a cozy sound. The picture of the system in her mind was of an intimately related group of suns pouring a veritable blaze of light into the surrounding heavens. Immigration-appeal folders did nothing to discourage her opinion.

The first shock came on the twelfth day out when the loudspeakers blared that the Ridge was now visible to the naked eye.

It was, all two hundred light-years of it, spread across the heavens. There were one hundred ninety-four suns in the group, seventy of them as large or larger than Sol—at least so the announcer shouted. Evana saw only pin points of light in a darkness the intensity of which was but faintly relieved by a sprinkling of more remote stars.

Grudgingly, she recognized that there *was* a resemblance to a ridge—and then all thought of the physical aspect of the stars ended, as the announcer said:

"—a vote will shortly be taken as to which planet of which sun every passenger of this ship will be landed on. The majority will decide and all must abide by the decision. Good-by for now."

Literally, her mind reeled. Then she was fighting through the packed corridors and decks. She reached the captain's cabin, and began her protest even as the door was banging shut behind her:

"What kind of outrage is this? I'm going to my sister's on the third planet of the Doridora sun. That's what I bought my ticket for, and that's where I'm going, vote or no vote."

"Don't be such an innocent," said the young man who sat behind the big desk in one corner of the small room.

Evana stared at him. "What do you mean?"

His grinning face mocked her. He had blue eyes and a space-tanned face, and he looked about thirty. He said:

"You're in space now, sister, far from the rigid laws of Earth. Where you're going atomic engineering is building a man-controlled universe, fortunes are made and lost every day, people die violently every hour, and the word of the big operators is the final authority."

He stopped. He stared at Evana sardonically. He said:

"It's a game, beautiful. That's what you've been caught up in. All the improvements in working conditions on Earth and other static planets during the past fifty years were designed to prevent wholesale immigration to the newer worlds of the Galaxy. The governments of the Ridge Star planets and other star groups have had to develop cunning counterants, including cutting the price of the trip to less than cost. That explains why it's impossible to do anything but dump each shipload *en masse*. This cargo, for instance, is headed for Delfi II."

"But," Evana gasped, "there's going to be a ballot taken as to which planet we land on. The announcer said—"

The young man roared with laughter. "Oh, sure." The mirth faded from his face. "And it's going to be all fair and square, too—pictures of each planet, short educational talks, an elimination vote every time four planets have been discussed—absolutely straight merit will decide the issue. But Delfi II will be selected because it's Delfi's turn, and so we're showing that planet to advantage, while the seamier sides of other planets get top billing this trip. Simple, eh?"

As Evana stood there too stunned to speak, he went on, "Delfi's a grand place: Endless jobs for everybody. Its capital city, Suderea, has four million population, with ninety buildings of more than a hundred stories—oceans, rivers, mountains, a grand climate— Oh, it's a great world!

"You'll hardly believe me, but there are men out in the Ridge Stars whose names are synonyms for money or power; and the greatest of them all is a young Norwegian-Englishman named Artur Blord. He's a byword. You'll hear his name in every town and village. In less than ten years he's made an astronomical fortune by outsmarting the big shots themselves. They exploit men; he exploits *them*. Why—"

"But you don't understand"—she felt desperate—"my sister expects me!"

His answer was a shrug. "Look, lady, the Ridge Star governments have offered a prize for the invention of an interstellar drive that won't infringe existing Earth patents, but until that prize is won the only way you'll ever get off Delfi II would be to get in good with some private owner of a spaceship. There just isn't any public transport.

"And now"—he stood up—"I'm afraid you'll have to stay here in my cabin until that ballot has been taken. It's my policy to be honest with those who complain, but it means restrictions for them. Don't get alarmed! I have no personal designs on you, even though you wouldn't have a single comeback if I did have. But a man like myself with seventeen wives on as many planets, thirty-eight kids and a soft heart can't afford to get mixed up with any more women."

He went out; the door clicked behind him—and now seven days later here was the unwanted world of Delfi II.

Evana paused uncertainly, at the great gate of the landing field. For a moment, as she stood there, staring down at the city below and the blue sheen of the sea beyond, she felt constricted, cold with dread.

There was a sound behind her. Rough hands smashed across her mouth, grabbed her arms. She was lifted bodily through a door into a wingless plane—that curled up into the air like smoke rising from a chimney.

Masked men—how heavy they were! Their very weight resisted her feeble efforts to claw free. She felt the slight bump

as the plane landed. Then she was in a room, falling toward a couch.

She had not the faintest idea whether she had been flung down, or had collapsed. But lying down made things easier. The agony of exhaustion faded. The salty taste in her mouth, product of her terrible struggling, began to go away. Her vision came slowly back into focus.

She saw that she was in a magnificently furnished living room and—with a gasp Evana clawed to a sitting position—standing a dozen feet away, staring at her, was a powerful-looking man wearing a mask.

"Ah," said the man, "coming back to life, are you? Fine."

He moved in a leisurely fashion toward a table which stood against one wall. There were liquor bottles on it, glasses and other odds and ends. He looked over his shoulder; and Evana was aware of hard gray eyes peering at her from the mask slits.

"What'll you have, baby?" he said.

It was an abrupt recognition of the kind of mask he wore that throttled her scream in her throat. There was the exact bulge at the mouth that she had seen so often in movies, the bulge that was the machine which disguised the wearer's voice.

The reality of a voice-dissolver mask was so unreal that a wild laughter gurgled from Evana's lips. She stopped the laughter as she realized the hysteria in it, and found her voice.

"I want to know the meaning of this!" she gulped. "I'm sure there must be some mistake. I—"

The big man swung around on her. "Look, kid, quit babbling. There's been no mistake. I picked you up because you're a pretty and intelligent-looking girl. You're going to make a thousand stellors for yourself, and you're going to make it whether you like it or not. Now, stop looking like a scared fool."

Evana tried to speak—and couldn't. It took a long moment to realize why: Relief! Relief so tremendous that it hurt deep down like a thing badly swallowed. Whatever was here, it wasn't death.

The bottom came back into her world; and then the man was speaking again, saying:

"What do you know of the Ridge Stars?"

She stared blankly. "Nothing."

"Good." He loomed above her, his eyes gleaming with satisfaction. He went on, "What was your occupation on Earth?"

"I was a mechanical-filing-system operator."

"Oh!" His tone held disappointment in it. "Well, it doesn't matter," he said finally. "The employment agency will put an educator on you, and make you into a passable private secretary in one hour."

It was like listening to a code message without knowing the key. Helplessness surged through her; and she had a sudden, vivid picture of herself sitting here in this room three thousand light-years from Earth *minutes* after her landing, with a masked man mouthing meaningless words at her.

Abruptly, there was no doubt at all that this was what the stories back on Earth had meant, the stories that said that on the far planets the frontiers extended right into the biggest of the cities. The crude kidnaping of her from an interstellar landing field couldn't be anything but frontier.

Her mind spun to a halt; and she saw that the man was fumbling in his pocket. He drew out a small white card. He said:

"Here's the name of your hotel. As soon as you're registered, go to the Fair Play Employment Agency—I've written the address on the back of the card—and they'll take care of you."

Evana took the card blankly, stuffed it unread into her purse. With widened eyes, she watched the man, as he picked up a small package from among the bottles on the table. She took the package with limp fingers when he held it out, heard him say:

"Put this in your purse, too. There's a note inside that ex-

plains everything you need to know. Don't be too shocked. Remember, there's a thousand stellors in it for you, if everything goes smoothly."

It didn't seem possible. It didn't seem reasonable. The man couldn't be such a fool as to let her walk out of here now, out of this apartment, trusting her to do as he wanted after she had gone out into the obscuring labyrinth of a vast city. And yet—

"Two more things," the man said in a silky tone, "and then you can leave. First, have you ever heard of seven-day poison?"

He leaned forward a little as he spoke the words; there was an intensity in his manner that, more even than his words, brought a curdling chill. She gasped, "It's the poison that feeds on the blood; and on the seventh day undergoes a chemical change that—"

She saw the syringe in his hand then, and with a thin scream leaped to her feet. The man yelled:

"Grab her!"

She had forgotten the other men. They held her as the needle stabbed into her left leg above the knee.

The needle withdrew; the men let her go; and she half-fell, half-sank to the floor from sheer reaction. She sat there, nursing, a sob in her throat, as the man said:

"The beauty of that poison is that it can be made like a lock pattern, in many thousands of slight variations—but the only antidote must have as its base a dose of the original poison, which as you can see is in my possession.

"Now, don't get hysterical." His tone was brutal. "I'll make up the antidote, and it'll be here after you've accomplished what I want."

"But I don't know where 'here' is!" Evana cried desperately. "Suppose something happens to you—"

"The second thing," said her tormentor curtly, "is another kind of precaution. It's just possible that several days may pass before you will find the opportunity to accomplish my pur-

pose, and that in the meantime the man whose secretary you are to become may want you to be his mistress. Now, it's quite obvious we can't have any prissy scruples on your part so—*Hold her!*"

The second needle stabbed painfully into her arm just above the elbow. Above her, the man said:

"O.K., take her out, drop her off near the hotel!"

When the door had closed behind Evana, Delaney slowly took off his mask. He stood for a moment then, a dark brooding figure of a man. Gradually, his heavy face wreathed into a grim smile. He picked up an eldophone, and said:

"Get me the president of the J. H. Gorder Atomic Power Co. on the planet Fasser IV. Tell him Delaney's calling."

"One moment, sir," the operator trilled.

A minute passed, then a click sounded; and a very clear, strong voice said:

"Gorder speaking. What's on your mind, Delaney?"

"All the initial moves against Artur Blord are now taken," Delaney said. "Tell the others they can start arriving tomorrow morning at the Castle of Pleasure, and advise the Skal *thing* to prepare the torture chambers. Good-by."

Evana Travis read the letter that was in the package:

By the time you read this, you will have opened the package I gave you. You will have noted that the package contains: (1) a cigarette case with cigarettes in it; (2) a necklace with a watchlike pendant; (3) a package of white pills; (4) a V-shaped copper device; (5) a syringe.

The cigarettes are doped. If circumstances permit, you will try to give one of them to the man who will be your employer beginning tomorrow. The circumstances, however, must be that you and he are alone, and that he is not suspicious of you. The case ejects two cigarettes at a time; the outer one is doped, the inner one is not, always.

The white pills constitute a second line of attack. They can be used to drug such things as water, coffee, liquor; also

they crumble easily and can be sprinkled over meat sandwiches, giving the appearance of salt.

The pendant is a radio device. As soon as Artur Blord, your future employer, is unconscious, unloosen the screw at the bottom and press the tiny bulb in the center. This will advise my men that you have taken the first step toward the accomplishment of our joint purpose.

The V-shaped copper device is designed to short-circuit the alarm system which Mr. Blord has installed on the top floor of his headquarters, which is located at 686 Financial Avenue. In order to employ this device properly it is necessary to understand the arrangement of rooms in Mr. Blord's penthouse.

The penthouse is divided into four main sections: the office, two apartments and a roof garden. The office is made up of three rooms, an anteroom, secretary's room and Mr. Blord's private office. From Mr. Blord's office a door leads to his personal eight-room apartment.

From the secretary's office there is an entrance to the other apartment, a small, four-room affair. This is where you will live, and I might say that the intimate implications of the arrangement are not misleading. Any unwillingness you may feel on the subject will be incentive to an early successful conclusion of your mission. The greater danger from the poison should, however, restrain you from inopportune action.

Both apartments have French doors which open onto the roof garden; and it is beside the French door of Mr. Blord's apartment that you will find an ornate metal instrument with a slit in it. Slide the V-shaped device into this slit, point first, until the two translucent ends of the V light up.

Now, press the bulb of the pendant again. My men will arrive within a few minutes. You must accompany them if you want your antidote and your reward. Afterward, I will transport you to any of the Ridge Star planets you desire. Obviously, for your own safety, you cannot remain on Delfi II.

It is not necessary for you to know all the reasons for my actions. Suffice to say that Mr. Blord's supercleverness has at last aroused the ire of the men who are actually building the Ridge Star civilization as distinct from Blord's trick methods of getting a share of the profits.

Item No. 5 in this package, the syringe, contains Nonchalant, a dose of which taken tomorrow morning will steady your nerves, keep color in your cheeks, no matter how great your inner nervousness. I advise you to take it every morning until you have accomplished your purpose.

As soon as you have read this letter, go to the Fair Play Employment Agency, whose address is on the card I gave you. I warn you most earnestly there is no time to waste. Tomorrow the seven-day poison will only have six days to go. You've got to do what I want—or die!

She slept badly. She did remember in the morning to inject a dose of Nonchalant into the upper part of her arm. But through all the actions and thoughts and memories that flooded her mind ran one dominant strain of terror:

She had to do what the masked man wanted, with utter will, with utter singleness of purpose. There *wasn't* any alternative.

The morning streets were packed, long wide boulevards of rushing human masses. Overhead streamed a countless swarm of airabouts. Number 686 Financial Avenue was a shining metal shaft of a building. It was narrow at the top, but at the bottom it spread over nine square blocks.

Great avenues plowed through its base. Plane shafts crisscrossed its upper stories; and at about the fortieth story was a sign that shone in the sun:

ARTUR BLORD HOLDING CO., LTD.

Far back in Evana's mind was the astounded thought that surely *she* wouldn't be hired as secretary by a man who must have tens of thousands of employees craving promotion to such a high position.

But the girl at the reception desk inside the first main entrance stared enviously at her agency card, and said:

"Go straight up to the one hundred ninetieth floor. I'll phone up to Mr. Magrusson."

And at the one hundred ninetieth floor, a plump, middle-aged man was waiting in the hallway. He rubbed his hands together unctuously.

"I must verify one thing," he said. "You did arrive yesterday on that freighter from Earth? And this is your first job, not only on Delfi, but on any planet other than Earth?"

So it was her recent Earth origin that gave her such a startling preference. Evana drew a deep breath. "I swear it!" she said.

The man smiled at her, his pale-blue eyes watering. "Good. We'll check that thoroughly, of course. But now, go straight up to the penthouse floor, and make yourself at home. Mr. Blord is expected shortly. Until he comes, you may familiarize yourself with the room arrangements. Everything on that floor is in your charge as of this moment. You may examine anything you please that isn't locked, and call me for any information you may require."

He went off down the hall and disappeared through a door that banged.

The silence of being alone brought no peace. Having an entire floor to herself only made her thoughts the more vivid; their dark continuity suffered neither the restraint of interruption nor the easement of hope.

All normal reaction was overshadowed by the menacing words Magrusson had spoken: "Mr. Blord is expected shortly."

The strain of that had no relation to anything she had ever endured.

Exploration did provide a brief surcease. But even there her preknowledge of the room arrangements canceled the full effect. For the description in the letter was exact. Seeing the reality simply filled in details.

Her office was a large denlike room with books, a filing system, a desk equipped with automatic Recorders, and there were several mechanical contrivances scattered along the walls that she barely glanced at.

Evana made a swift circuit of the private office beyond. It was a larger version of the secretary's room, but without the filing system. She did not go into the eight-room apartment of Artur Blord, simply glanced in, long enough to see the green foliage of the roof garden through the living-room windows.

The shaky thought came that she ought to make sure there was such an energy device to cut the alarm system as the letter had stated. But—*Mr. Blord is expected shortly.*

She withdrew to the secretary's office. Slowly, her nerve crept back, but she made no immediate attempt at further exploration. She began an elaborate examination of the mechanical filing system, but it seemed to yield nothing except detailed information about the geography, in the science sense of the word, of hundreds of planets.

She found herself frowning over the facts that came out, myriad facts about metals, forests, gems, valuable soils and estimates of value that seemed to have no relation to the money estimates that were also given. There was a field of chromium on the planet Tanchion IV, value: one hundred billion stellors; value: "Just plain slogging. Let somebody else do it all."

The two-value system extended everywhere. For a forest on Tragona VII, the first value was: All treasure wood; priceless. The second valuation said: "Dennis Kray is operator. Hard, cruel, brilliant. Should be interesting if I ever get around to it."

Her appetite and her watch registered two o'clock simultaneously on her startled consciousness. The hunger was distracting, a pressing force that grew with the thought of it. Twice, she started toward the door that led to the four-room apartment—*her* apartment now—and each time stopped herself with a shudder of repulsion that she couldn't explain immediately.

Gradually, she realized what it was. There would be food all right in the kitchen of that apartment, but there would also be reminders of its previous occupant, the last secretary-mistress

who was now gone into some unexplained discard. She *couldn't* go into that room.

Phone Magrusson, she thought, and shivered a negation because—suppose the plump creature tried to forestall his boss, and made a pass at her. Her enslaved brain would instantly put her at his mercy.

So long as the effect of the drug lasted she was any man's woman.

It was three o'clock before she recognized the fury of her thoughts for the madness it was—drew herself willfully back from the dark abyss, and went into the apartment.

It was a woman's living room that greeted her eyes and a woman's bedroom. Pastel colors made a muted pattern of gorgeousness. Everywhere were frills, knickknacks, fluffy comforts, extras from store departments that men would never think of visiting.

And one thing was overwhelmingly clear: It had been furnished without regard for money. After she had satisfied the first ravening impulses of her hunger, Evana sat frowning at the place. She would change the curtains, she thought, and the horrible, modern bed in the bedroom would go out. She had always dreamed of having a really costly canopied four poster and—

She caught her mind in its gyrations—and sat appalled. Shame came, then weariness. She thought at last hopelessly: What an incredible organ the human brain was. Given time, it accepted anything.

She stood up, and it was then for the first time that she saw the photograph. It was standing on the mantelpiece of the atomic fireplace; and she knew instantly that she was looking at the eidolon of Artur Blord.

It was the fine, sensitive countenance of a man of about thirty. If there had ever been Norwegian blood in his racial stock, it didn't show now. The lean face with its thin, aristo-

cratic nose, its strong chin and firm lips was English even to the curve of the cheeks, the tilt of the eyebrows.

His appearance disturbed her; not that it could make any difference. She *had* to carry out her purpose—but her mind went back to what the captain of the space freighter had said about the big financial and industrial operators in this part of the Galaxy. Strange to think the man had even mentioned Artur Blord as the greatest of them all because—what was it the commander had said?—the others exploited men, and Blord exploited *them.*

She must have slept for she wakened with a start, and saw that it was pitch dark. Brief panic came, and ended as, through the living-room windows, she saw a great moon come out from behind a dark cloud; its gleam poured through the glass and suffused the room with pale beauty.

She went to the windows and stared up at it, a globe of light ten times as big as Earth's satellite. Memory came that the educational talks on the space freighter had proved it wasn't a moon at all, but a dead companion planet as big as Delfi II; and that once, long before man came, there had been life on it—of which obscene remnants remained.

Evana's mind withdrew slowly from the moon, came back to her own situation. Funny how she had wakened with such a jerk as if—

Bzzzz! The sound made her jump. And then she stood as stiff as stone as a strong, clear man's voice said from a mechanical:

"Miss Travis, didn't you hear my first ring? I'm calling from my office, and I'd like you to come here as soon as you can."

"I," Artur Blord was saying an hour later, "like new cities, new planets. They're soulless. They have no culture, no institutions with hardening of the arteries, nobody going around yelling for prohibition of this, that and the other. If a man's got a religion—and who hasn't?—he's not scheming to force it down

somebody else's throat— Just a minute, here's something. Grab your recorder! Get this tight. It's for your private information!"

Evana grabbed. For an hour she had felt herself the center of a cyclone. A dozen times already she had feverishly manipulated her recorder to take dictation at a breath-taking speed. Her new employer dictated as he talked, apparently without thought or—she made the mental note—discretion.

For minutes on end, utterly without restraint, he had discussed vast projects on which he was engaged, switching from one business to another with bewildering rapidity; and always the only qualification was: "This is for your private information!"

He said now: "It's just a small note this time. Always spell out the name of our company in small letters, but put the word 'limited' in capitals. There have been some darned funny court rulings on that limited business on the Ridge Star planets. For instance, once it was held that using small letters made the world 'limited' appear insignificant beside a really grand sounding company name. Abbreviating it puts you out of court so fast you won't even know what hit your bank roll. There's some people will tell you that this is an age of science, but they're wrong—"

It took a moment for Evana to realize that he had changed the subject. She blinked, then adjusted, as Blord rambled on at speed:

"They're wrong because the great developments today are not in science, but in the use of discovered science. People are constantly amazed that I have no science degrees. I'm really the lucky one. I couldn't tell you the electronic structure of more than half a dozen atomettes, or the composition of half a dozen chemical compounds. But I know something far better than that: I know what those things do, and what their relation is to human beings and human progress. I consider myself a sort of superco-ordinator."

It was his boasting that ended all her fear. There was, of

course, the possibility that he was talking about himself and his merits in a perfectly objective fashion, and it even seemed probable that he'd be nice in a conceited sort of way if she ever got to know him. But the weights that were on her mind didn't leave room for immediate interest in any man or woman.

There was only her necessary purpose. And, thank God, he was so utterly guileless and unsuspicious. In a minute now, she'd bring out her cigarettes and—what was he saying? Cigarettes! Would she have a cigarette?

Evana felt briefly startled; then: "I have my own, thank you," she said.

On Blord's desk the needle attached to the chair in which the girl sat was jumping like a full-grown Yadr. Doped cigarettes, he thought cynically. And to think he'd been fishing around for an hour expecting something infinitely more subtle.

He had known the moment the girl entered his office that something was wrong. All the thousands of hours he had spent training himself to be what he was concentrated into the first glance he gave her, and revealed that she was mentally nervous without any of the physical by-products. That meant—dosed with Nonchalant at a hundred stellors a gram. Would an immigrant have that kind of money? Not normally.

The rest was merely a matter of trying to find out who was behind her. And yet all the names he mentioned scarcely stirred the needle. Either she didn't know—or the time had come for more direct action.

"Earth cigarettes!" he said eagerly. "Would you mind letting me have one? I sometimes long for them."

He walked around his desk, over to her. The girl manipulated the ejector and brought forth two cigarettes. She took the inner one, then held the other out to him. He took it without question.

She accepted the light he offered. He walked back to his chair as if forgetting his own cigarette, and sat idly holding it between his fingers. The needle, he saw grimly, was hovering around its zenith.

He smiled finally, put the cigarette to his lips, picked up the lighter, stared for a moment at its flame—and with his foot pressed the lever that activated the energy of the chair in which the girl sat.

She crumpled like a child falling to sleep.

"—listen, Doc," he was saying into his phone a few minutes later, "I know it's past two, but I want you up here immediately. I've got a girl whom I want examined physically and mentally, the full hypnotism treatment if necessary. I want her in such a keyed-up condition that she'll be able to look at pictorial records of all the big operators I have had anything to do with the past year, and be able to recognize them even if she only saw them previously with masks on. I've got to find out who's gunning for me. . . . You're coming? O.K. Make it fast."

It took about an hour for the tests, but at last the picture came clear. Doc Gregg dimmed the strong lights that had blazed for so long at the girl's unconscious body; and Blord staring silently, savagely, down at her thought:

"She looks like a tired youngster caught by weariness far from her bed." He laughed finally, curtly.

"Really," he said, "I suppose I have no business getting het up. There just isn't any way of stopping the use of sex dope and the seven-day poison; they fit in too perfectly with the lusts of men. And in a universe of a billion planets who can ever find the underground factories where the damned brews are turned out?"

He saw that the old man was staring at him thoughtfully. Doc Gregg said:

"Why don't you try hiring men secretaries?"

Blord shook his head. "Men who come to the Ridge Stars are too ambitious to be good employees of anybody. I've had two as secretaries. A fellow called Grierson who sold information about me to the Munar I mining people. The money he got he used to start himself up as an operator on one of the

Gildal planets. The other man couldn't bear the thought of all the money I was making, and tried to shoot me.

"You see," he went on, frowning, "men regard themselves as my competitors; women do not. I've had women angry with me because it never even occurred to me to marry them. But no sensitive, intelligent woman—and Magrusson hires no others—has ever tried to do me damage. That may be a callous way of looking at it, but it's the truth."

His dark gaze played over the still form of Evana. "This is the first case of a girl being foisted on me with criminal intent. But it merely proves that my habit of hiring only secretaries fresh from Earth, because of their ingrained sense of loyalty, has been found out, and that I'd better investigate the powers behind the Fair Play Employment Agency."

He broke off, smiled grimly. "So it's Delaney, Gorder, Dallans, Cansy, Neek and, I have no doubt, the rest of the ninety-four competitors for the prize being offered for a new space drive, who are behind this attack. I knew I'd shock them when I entered the competition two weeks ago. After all the money they've spent on research, to have somebody enter who has a reputation for never losing—but I can say honestly this time my conscience is clear. I'm doing it entirely for the good of the Ridge Stars. Well"—he smiled again, wryly—"almost entirely."

"What's the dope on that space drive, anyway?" Doc Gregg said.

"My old infallible method," Blord laughed. "I played bullish on human genius, and bear on human nature. You may not believe this, but my research laboratories didn't do a stroke of work prior to a month or so ago. And yet we've got the winning drive."

He saw that the old man was staring at him from shrewd gray eyes. "I'm not going to guess what you're up to, young man. But it looks as if you've cut into a hornet's nest. What about this kid? She's got five days to live; any bets that they try to save her if she doesn't deliver the goods?"

"I wouldn't even bet they'd save her if she did." Blord snapped. He scowled, said finally. "Damn it, I can't carry the world on my shoulders. I feel sorry for her, but her only hope is for me to let my capture go through.

"The worst of it is, they'll be waiting at the impregnable Castle of Pleasure on Delfi I. It's the only place where a bunch like that would trust themselves together. If I thought there was one chance in five, I might risk being the guest of the Skal *thing,* but not—"

He stopped. His eyes narrowed with the sudden thought that came. He grew aware finally that the old medico was looking at him with a grin. Doc Gregg said softly:

"What do you want me to do, son—set everything up as it was?"

"Yes," said Blord slowly, "yes. It's that damned instinct of mine for playing with fire. To begin with, I'll need some preconditioning—"

Evana had a sense of faintness; that was all. Then she straightened; and there was Artur Blord still lighting the cigarette. She stared at him in fascination as he took a deep puff with evident enjoyment. She cringed inwardly as a startled expression leaped into his eyes.

He half-slid, half-fell to the floor and lay there face up, the ceiling light glowing down on his closed eyes. In that quiet repose, the noble lines of his countenance seemed accentuated; all the sillier aspects of him, the volubility, the immense and casual indiscretions, the braggadocio faded and were lost in that pure physical tranquillity.

He looked like Adonis struck down by the killer boar, like a man already dead, needing only a coffin to seal him forever from life.

It was funny, Evana thought shakily, staring down at him, how she had really known all the time that she couldn't possibly ever sacrifice anyone else to save herself. Funny how she

had known, too, deep in her mind, that only the ultimate moment would bring her face to face with the reality.

Stunned, she sank down in her chair, and buried her face in her hands. After ten minutes Artur Blord stood up from the floor, and said gently:

"Thanks, Miss Travis. Your action in a crisis makes me very glad I decided to try to save you. But now, you've got to go through with it. Listen—"

It was about seven minutes later that Delaney's men landed, and carried Blord aboard the spaceship. The girl went along without a word.

Blord, lying on a narrow bunk, felt the brief strain as the machine launched upward toward Delfi I.

The dark Castle of Pleasure stood on the Mountain of Eternal Night on the dead moon that was the companion planet of Delfi II. Remnant of a forgotten civilization, its scores of towers pierced the heavens like gigantic swords. No man had ever delved into all its labyrinthian depths, for men entered that antique place only by permission of the one living relict of its long-dead builders, by the permission of the Skal *thing*.

And it wasn't just because men were being polite, either, Blord remembered grimly. Several secret attempts had been made by Ridge Star governments to smash the structure, to end a particularly hideous form of white-slave traffic. But atomic energy washed from the alien towers like water spraying over steel; the great doors remained impervious to energy blows of a billion horsepower; and patrol ships, commissioned to prevent orgy hunters from seeking the Castle's unnatural pleasures, had a habit of disappearing, never to be heard from again.

And long ago the Skal *thing* had let it be known that the castle was a safe meeting place, at a price, for men who couldn't otherwise trust themselves together. The great operators of the Ridge Stars held cautious test meetings and—

The ship was slowing. Blord grew tense as, somewhere ahead and outside, there was a rattle of metal, a dull roar that

ended as swiftly as it began. The ship moved forward, then stopped again. The rattle of metal sounded once more, vibrantly, behind the ship this time.

They were, Blord thought tensely, inside the Castle; and he was committed irrevocably. He lay, eyes closed as tight as ever, but his body was quivering now. He hadn't long to wait.

Something, a strange, slimy something slithered against his mind. He had expected it; the stories he had heard had even described what it was like, this mind reading by the Skal *thing* —but the actuality was stunning.

He lay struggling to suppress his horror, and keep his mind quiet, as a visualization transferred from the *thing* to him, a visualization of a long, scaly, reptile body crouching in some nether darkness, peering into his brain with a glee that had no human counterpart—the Skal projecting an image of itself.

And the picture clung; the reptilian mind studied him, and finally sent a caressing, steely thought:

"You puzzle me, Artur Blord, for you are not in mental night, as you pretend. Yet you have come to my old abode, from which none can escape unless my clients will it. I shall watch the unfolding of the plan in your mind, and shall not betray it. But beware! No force of yours, whether by impulse of the agony of the moment or deep-seated will shall prevail."

Blord made an intense effort, sent a thought straight at that nightmare image:

"I'll pay you double, treble, what they are paying, if you help me in a crisis."

Hideous laughter billowed soundlessly in his mind, and finally a satirical thought:

"Would you seduce the honor of my house? Know then that today and until further notice the chamber of torture and all its services belong to those who have it. Such is my code. So it shall be ever."

Blord snarled, "Go to hell, you *damned* thing."

Almost, he said it aloud. But the mind, the image, was withdrawing, still giving vent to its unnatural laughter. Si-

multaneously—and that was what stopped his words—hands grabbed him out of the bunk. A voice said:

"Lay him on the gravitor roller. Tell Travis she's got to stay aboard. The boss is going to keep her for a while as his girl friend."

There was a hiss of air locks opening, then the gravitor began to move. It seemed to be rolling along a glass-smooth floor. The pressure of light on Blord's eyelids shadowed noticeably; very carefully, and for the first time, he parted them ever so slightly.

He was in a dim tunnel gliding along faster than he had thought. A gleamy roof slid by, a dully lighted surface that seemed to emit a reflection of some remoter light rather than itself being a source.

Abruptly, the tunnel widened, opened up into a large round room. Blord had a swift picture of men shapes in semi-darkness. The next instant the gravitor slowed; as it pulled to a stop, a man's ironic voice said somewhere out of the darkness:

"Ah, our guest has arrived!"

Then: "Waken him!"

Blord sat up. He had no desire to have the unpleasant revival drug injected into his system. These doped cigarettes were not expected to have a lasting effect, so his return to consciousness should not cause too much suspicion. A few doubts, however, wouldn't matter.

He peered around him; then, "Good God!" he said.

He mustn't overdo his surprise, he thought. A little frank bewilderment; and then—

He saw for the first time that a radium bulb, turned dead slow, lay on or protruded from the middle of the floor. A ghostly luminescence shed from it; and it was by that dim radiance that the blobs of men were visible.

The masks the men wore added an inhuman quality to the scene, that ended as the shape that had already spoken said:

"I don't think we need delay, now that our guest is re-

covered. We are all busy men; and even the subtle joys of the Castle of Pleasure cannot long hold our various attentions.

"As you know, when the Galactic Co., believing its space drive patents made its position invincible, asked prohibitive rates and impossible preliminary fees to start an organized passenger and transport service in the Ridge Star system, our governments announced an open competition.

"They had purchased local rights to a drive vastly inferior to the superb Galactic drive, and asked competitors to put their research staffs to the task of improving it. All improvements were guaranteed to the companies that made them and, in the event of duplication, an equitable adjustment was promised."

Now, Blord thought, now! "Pardon me," he said in an intense voice. "But has anyone developed a drive that's as much as one quarter as fast as the Galactic? If not, then every person in this meeting is cutting his financial throat."

"What do you mean?" said a voice.

"Never mind what he means!" roared the man who was standing. "Can't you see he's trying to start us arguing?"

"I mean," Blord cut in swiftly, "that a property pays according to the speed with which produced goods are transferred to market. The only reason I entered the contest at all was when I heard of some of the ridiculously low speeds that—"

"SHUT UP!"

Blord shrugged, and smiled savagely. He had put over his first point. It was one that had undoubtedly occurred previously to them all, but it could stand stressing. The speaker was continuing:

"Two weeks ago, with a great fanfare, a very flourish of publicity, Artur Blord entered the competition. What had been a serious and expensive business enterprise became a circus. Such is the fantastic reputation of this man that the ninety-four companies which had spent billions of stellors on research were instantly laughingstocks, pitied by newspaper editorials, butts for fools, comedians, pranksters. And there is, of course, no doubt that Blord, knowing his fame, knew also that he could

not afford a failure. Therefore, we assumed that he had the prize-winning drive; and, through the Skal, someone called the first meeting, where a plan was agreed upon, and I was selected by lot to carry it out.

"Our purpose is to obtain from Mr. Blord the secret of his drive, and to have him sign over to us all rights to his ship—"

"Is it possible," Blord marveled, "that the great individualistic operators of the Ridge Stars have at last agreed to cooperate, even if it is only a division of spoils that is involved? However, I'm sorry, you're all too late."

"What do you mean?"

"I have already assigned my rights to the Delfi Government, to take effect in the event that I do not turn up at the contest, with the stipulation that a public utility be formed. As for getting the secret out of me, that's impossible. Purely by accident I had myself counter-hypnotized today, and by some odd coincidence it was about this very matter. However—"

"WHAT?"

The shout was followed by a dead silence that developed into a restless shuffling of bodies. At last, however, a voice said softly:

"At least we can still kill him. At least we can prevent him from being a damned nuisance to us in the future."

Here, beyond doubt, was death, unless—

Blord climbed slowly down from the gravitor. It struck him for the first time as his feet touched the hard floor that he was not, as he had always believed, a brave man. There was a weakness in his knees that made him feel wobbly.

This damned dim room, he thought shakily. He tried to picture it as it must have been when the Skal *things* were a young and vibrantly alive race and—

And couldn't! There was only himself here in this hell hole. He said aloud, grimly:

"You seem to have me, gentlemen. But I would say that you should think twice before you kill me. When I get into

traps like this, I am usually prepared to make almost any kind of deal."

"The rat's beginning to squeal," somebody sneered from the dimness.

Blord shrugged. In such circumstances insults did not begin to touch him.

"When I eat humble pie, I eat all of it," he said coolly. "Now, as I understand it, the two main complaints against me are that I have endangered research investments and that I have made you all the subject of ridicule. It seems to me that if everyone's investment is guaranteed and the ridicule is turned on me, you gain—"

Somebody exploded, "Is this a man talking or a louse?"

There was a general murmur of disgust; and Blord felt the tensity of contempt that was suddenly out there. In spite of himself he flushed. He knew the codes that governed these far-flung frontiers of space; and he could suddenly visualize how his words, as he was uttering them, would later be broadcast to shame him. The dark picture put sharpness into his tone, as he snapped:

"Hear my proposition at least. It's to your advantage."

"Oh, sure," said a scathing voice. "Let's hear his proposition. Our stomachs are turned now. The worst shock is over."

Blord felt a quaver of irritation, intense irritation. They were all crazy, these men who used sex-dope on innocent women, seven-day poison, murder and straight robbery as instruments of their will, to feel so strongly about an apparent show of cowardice. With an effort he fought down his anger. The code was there. It existed. He hadn't figured it into his plan, but the very starkness of their feelings on the subject made everything easier.

"My ship," he began, "will win the race. It has attained a speed just under eighty-one percent of a Galactic liner. If anyone can equal that, just let him speak now, and I'll go quietly to the slaughterhouse. Well?"

After a moment, he went on more sardonically, "I am pre-

pared to make the following offer, to be drawn up immediately, signed and sealed:

"That a joint stock company be formed with an issue of two hundred shares. Of these, fifty shall belong to me. One share each shall be assigned to each of ninety-three of the ninety-four companies, on the condition that they sign over all their patent rights to the new firm.

"The other fifty-seven shares shall be turned over to Selden Delaney, who will operate the company under the Kallear Regulations.

"I must be released immediately after the signing.

"Evana Travis shall be given the antidote and turned over to me unharmed immediately.

"Anyone or group may launch all the ridiculing propaganda they care to against me.

"The whole agreement is nullified unless I am alive at the time of the contest, and it goes into effect only if my ship does in fact win the prize."

A man shouted, "This will ruin you, Blord. The lowest riffraff will despise you after we get through publicizing how much dirt you've eaten."

It was several hours later that his spaceship flashed down to pick Blord up. And it was then, as he was stepping out of one of the dim tunnels of the Castle into the bright interior of the machine, that he felt the unwholesome touching against his mind that was the thought of the Skal *thing:*

"Well done, Artur Blord. How they will howl when their ridicule recoils upon them. Your ingenuity has given an unexpected titillation to my old bones. To show my appreciation for such an intellectual delicacy, you may call upon me at any time for one favor. Good luck."

The slimy mind withdrew into its night.

"But what *is* your plan?" Evana asked blankly later, as the ship hurtled through space. "You said you had one. But all

I can see is that you're going to lose your reputation, and you've signed away seventy-five percent of your rights to the winning space drive. If that's your idea of victory— And why did you give that terrible Delaney the lion's share?"

She looked genuinely bewildered. Blord stared at her thoughtfully, said finally:

"Don't forget that I didn't have a space drive three weeks ago. And don't forget, either, that I'm a twenty-five percent man, generally speaking. I can't be bothered with the details of an operation. What mainly interests me was that there should be a fast transport system.

"Of course"—he grinned—"once I thought of it, the idea was too lovely to let go by default."

He broke off: "As for Delaney, obviously the man who actually runs a great interstellar line has to have a big incentive. And it had to be Delaney because he had you and the antidote. I had no choice; and don't think he didn't know it, either."

"But what *was* your idea?"

"It's really very simple. To begin with, I was absolutely certain that there would be merging of discoveries after the race that would greatly increase the speed involved. I anticipated. It cost me the fantastic sum of seven hundred million stellors in bribes, but sure enough a few simple combinations of several companies' different developments of the original atomic reaction and—

"You see," he finished blandly, "when they discover that they've signed away the patent rights on which my drive is based, that in fact *they* provided the drive, I don't think they'll feel like laughing any more."

There was a long silence. At last Evana tossed her head, said almost defiantly, "What about me?"

She was aware of his dark eyes studying her thoughtfully. He said at last, "I'm taking you to your sister on Doridora III."

"Oh!" said Evana. She wondered dimly why she felt miserable. The answer struck her two days later as she watched the

silver-shining ship recede into the bluest sky she had ever seen. She whirled on her sister.

"Do you know what's the matter with the Ridge Stars?" she said savagely. "There's too damned many chivalrous people."

Isaac Asimov

BRIDLE AND SADDLE

In an interstellar community, could peace prevail without an effective military check against ambitious planets?

A DEPUTATION!

That Salvor Hardin had seen it coming made it none the more pleasant. On the contrary, he found anticipation distinctly annoying.

Yohan Lee advocated extreme measures. "I don't see, Hardin," he said, "that we need waste any time. They can't do anything till next election—legally, anyway—and that gives us a year. Give them the brush-off."

Hardin pursed his lips. "Lee, you'll never learn. In the forty years I've known you, you've never once learned the gentle art of sneaking up from behind."

"It's not my way of fighting," grumbled Lee.

"Yes, I know that. I suppose that's why you're the one man I trust." He paused and reached for a cigar. "We've come a long way, Lee, since we engineered our coup against the Encyclopedists way back. I'm getting old. Sixty-two. Do you ever think how fast those thirty years went?"

Lee snorted. "I don't feel old, and I'm sixty-six."

"Yes, but I haven't your digestion." Hardin sucked lazily at his cigar. He had long since stopped wishing for the mild Vegan tobacco of his youth. Those days when the planet, Terminus, had trafficked with every part of the Galactic Empire belonged in the limbo to which all Good Old Days go. Toward the same limbo where the Galactic Empire was heading. He wondered who the new emperor was—or if there was a new

emperor at all—or any Empire. Space! For thirty years now, since the breakup of communications here at the edge of the Galaxy, the whole universe of Terminus had consisted of itself and the four surrounding kingdoms.

How the mighty had fallen! *Kingdoms!* They were prefects in the old days, all part of the same province, which in turn had been part of a sector, which in turn had been part of a quadrant, which in turn had been part of the all-embracing Galactic Empire. And now that the Empire had lost control over the farther reaches of the Galaxy, these little splinter groups of planets became kingdoms—with comic-opera kings and nobles, and petty, meaningless wars, and a life that went on pathetically among the ruins.

A civilization falling. Atomic power forgotten. Science fading to mythology—until the Foundation had stepped in. The Foundation that Hari Seldon had established for just that purpose here on Terminus.

Lee was at the window and his voice broke in on Hardin's reverie. "They've come," he said, "in a last-model ground car, the young pups." He took a few uncertain steps toward the door and then looked at Hardin.

Hardin smiled, and waved him back. "I've given orders to have them brought up here."

"Here! What for? You're making them too important."

"Why go through all the ceremonies of an official mayor's audience? I'm getting too old for red tape. Besides which, flattery is useful when dealing with youngsters—particularly when it doesn't commit you to anything." He winked. "Sit down, Lee, and give me your moral backing. I'll need it with this young Sermak."

"That fellow, Sermak," said Lee, heavily, "is dangerous. He's got a following, Hardin, so don't underestimate him."

"Have I ever underestimated anybody?"

"Well, then, arrest him. You can accuse him of something or other afterward."

Hardin ignored that last bit of advice. "There they are,

Lee." In response to the signal, he stepped on the pedal beneath his desk, and the door slid aside.

They filed in, the four that composed the deputation, and Hardin waved them gently to the armchairs that faced his desk in a semicircle. They bowed and waited for the mayor to speak first.

Hardin flicked open the curiously carved silver lid of the cigar box that had once belonged to Jord Fara of the old Board of Trustees in the long-dead days of the Encyclopedists. It was a genuine Empire product from Santanni, though the cigars it now contained were home-grown. One by one, with grave solemnity, the four of the deputation accepted cigars and lit up in ritualistic fashion.

Sef Sermak was second from the right, the youngest of the young group—and the most interesting with his bristly yellow mustache trimmed precisely, and his sunken eyes of uncertain color. The other three Hardin dismissed almost immediately; they were rank and file on the face of them. It was on Sermak that he concentrated, the Sermak who had already, in his first term in the City Council, turned that sedate body topsy-turvy more than once, and it was to Sermak that he said:

"I've been particularly anxious to see you, Councilman, ever since your very excellent speech last month. Your attack on the foreign policy of this government was a most capable one."

Sermak's eyes smoldered. "Your interest honors me. The attack may or may not have been capable, but it was certainly justified."

"Perhaps! Your opinions are yours, of course. Still, you are rather young."

Dryly. "It is a fault that most people are guilty of at some period of their life. You became mayor of the city when you were two years younger than I am now."

Hardin smiled to himself. The yearling was a cool customer. He said, "I take it now that you have come to see me

concerning this same foreign policy that annoys you so greatly in the Council Chamber. Are you speaking for your three colleagues, or must I listen to each of you separately?"

There were quick mutual glances among the four young men, a slight flickering of eyelids.

Sermak said grimly, "I speak for the people of Terminus—a people who are not now truly represented in the rubber-stamp body they call the Council."

"I see. Go ahead, then!"

"It comes to this, Mr. Mayor. We are dissatisfied—"

"By 'we' you mean 'the people,' don't you?"

Sermak stared hostilely, sensing a trap, and replied coldly, "I believe that my views reflect those of the majority of the voters of Terminus. Does that suit you?"

"Well, a statement like that is all the better for proof, but go on, anyway. You are dissatisfied."

"Yes, dissatisfied with the policy which for thirty years has been stripping Terminus defenseless against the inevitable attack from outside."

"I see. And therefore? Go on, go on."

"It's nice of you to anticipate. And therefore we are forming a new political party; one that will stand for the immediate needs of Terminus and not for a mystic 'manifest destiny' of future Empire. We are going to throw you and your lickspittle clique of appeasers out of City Hall—and that soon."

"Unless? There's always an 'unless,' you know."

"Not much of one in this case: Unless you resign now. I'm not asking you to change your policies—I wouldn't trust you that far. Your promises are worth nothing. An outright resignation is all we'll take."

"I see." Hardin crossed his legs and teetered his chair back on two legs. "That's your ultimatum. Nice of you to give me warning. But, you see, I rather think I'll ignore it."

"Don't think it was a warning, Mr. Mayor. It was an announcement of principles and of action. The new party has already been formed, and it will begin its official activities to-

morrow. There is neither room nor desire for compromise, and, frankly, it was only our recognition of your services to the City that induced us to offer the easy way out. I didn't think you'd take it, but my conscience is clear. The next election will be a more forcible and quite irresistible reminder that resignation is necessary."

He rose and motioned the rest up.

Hardin lifted his arm. "Hold on! Sit down!"

Sef Sermak seated himself once more with just a shade too much alacrity and Hardin smiled behind a straight face. In spite of his words, he was waiting for an offer—any offer.

Hardin said, "In exactly what way do you want our foreign policy changed? Do you want us to attack the Four Kingdoms, now, at once, and all four simultaneously?"

"I make no such suggestion, Mr. Mayor. It is our simple proposition that all appeasement cease immediately. Throughout your administration, you have carried out a policy of scientific aid to the Kingdoms. You have given them atomic power. You have helped rebuild power plants on their territories. You have established medical clinics, chemical laboratories and factories."

"Well? And your objection?"

"You have done this in order to keep them from attacking us. With these as bribes, you have been playing the fool in a colossal game of blackmail, in which you have allowed Terminus to be sucked dry—with the result that now we are at the mercy of these barbarians."

"In what way?"

"Because you have given them power, given them weapons, actually serviced the ships of their navies, they are infinitely stronger than they were three decades ago. Their demands are increasing, and with their new weapons, they will eventually satisfy all their demands at once by violent annexation of Terminus. Isn't that the way blackmail usually ends?"

"And your remedy?"

"Stop the bribes immediately and while you can. Spend your effort in strengthening Terminus itself—and attack first!"

Hardin watched the young fellow's little blond mustache with an almost morbid interest. Sermak felt sure of himself or he wouldn't talk so much. There was no doubt that his remarks were the reflection of a pretty huge segment of the population, pretty huge.

His voice did not betray the slightly perturbed current of his thoughts. It was almost negligent. "Are you finished?"

"For the moment."

"Well, then, do you notice the framed statement I have on the wall behind me. Read it, if you will!"

Sermak's lips twitched. "It says: 'Violence is the last refuge of the incompetent.' That's an old man's doctrine, Mr. Mayor."

"I applied it as a young man, Mr. Councilman—and successfully. You were busily being born when it happened, but perhaps you may have read something of it in school."

He eyed Sermak closely and continued in measured tones, "When Heri Seldon established the Foundation here, it was for the ostensible purpose of producing a great Encyclopedia, and for fifty years we followed that will-of-the-wisp, before discovering what he was really after. By that time, it was almost too late. When communications with the central regions of the old Empire broke down, we found ourselves a world of scientists concentrated in a single city, possessing no industries, and surrounded by newly created kingdoms, hostile and largely barbarous. We were a tiny island of atomic power in this ocean of barbarism, and an infinitely valuable prize.

"Anacreon, then as now, the most powerful of the Four Kingdoms, demanded and actually established a military base upon Terminus, and the then rulers of the City, the Encyclopedists, knew very well that this was only a preliminary to taking over the entire planet. That is how matters stood when I . . . uh . . . assumed actual government. What would you have done?"

Sermak shrugged his shoulders. "That's an academic question. Of course, I know what *you* did."

"I'll repeat it, anyway. Perhaps you don't get the point. The temptation was great to muster what force we could and put up a fight. It's the easiest way out, and the most satisfactory to self-respect—but, nearly invariably, the stupidest. *You* would have done it; you and your talk of 'attack first.' What I did, instead, was to visit the three other kingdoms, one by one; point out to each that to allow the secret of atomic power to fall into the hands of Anacreon was the quickest way of cutting their own throats; and suggest gently that they do the obvious thing. That was all. One month after the Anacreonian force had landed on Terminus, their king received a joint ultimatum from his three neighbors. In seven days, the last Anacreonian was off Terminus.

"Now tell me, where was the need for violence?"

The young councilman regarded his cigar stub thoughtfully and tossed it into the incinerator chute. "I fail to see the analogy. Insulin will bring a diabetic to normal without the faintest need of a knife, but appendicitis needs an operation. You can't help that. When other courses have failed, what is left but, as you put it, the last refuge? It's your fault that we're driven to it."

"I? Oh, yes, again my policy of appeasement. You still seem to lack grasp of the fundamental necessities of our position. Our problem wasn't over with the departure of the Anacreonians. They had just begun. The Four Kingdoms were more our enemies than ever, for each wanted atomic power—and each was kept off our throats only for fear of the other three. We are balanced on the point of a very sharp sword, and the slightest sway in any direction— If, for instance, one kingdom becomes too strong; or if two form a coalition— You understand?"

"Certainly. That was the time to begin all-out preparations for war."

"On the contrary. That was the time to begin all-out prevention of war. I played them one against the other. I helped each in turn. I offered them science, trade, education, scientific medicine. I made Terminus of more value to them as a flourishing world than as a military prize. It worked for thirty years."

"Yes, but you were forced to surround these scientific gifts with the most outrageous mummery. You've made half religion, half balderdash out of it. You've erected a hierarchy of priests and complicated, meaningless ritual."

Hardin frowned. "What of that? I don't see that it has anything to do with the argument at all. I started that way at first because the barbarians looked upon our science as a sort of magical sorcery, and it was easiest to get them to accept it on that basis. The priesthood built itself and if we help it along we are only following the line of least resistance. It is a minor matter."

"But these priests are in charge of the power plants. That is *not* a minor matter."

"True, but *we* have trained them. Their knowledge of their tools is purely empirical; and they have a firm belief in the mummery that surrounds them."

"And if one pierces through the mummery, and has the genius to brush aside empiricism, what is to prevent him from learning actual techniques, and selling out to the most satisfactory bidder? What price our value to the kingdoms, then?"

"Little chance of that, Sermak. You are being superficial. The best men on the planets of the kingdoms are sent here to the Foundation each year and educated into the priesthood. And the best of these remain here as research students. If you think that those who are left, with practically no knowledge of the elementals of science, or worse still, with the distorted knowledge the priests receive, can penetrate at a bound to atomic power, to electronics, to the theory of the hyperwarp—you have a very romantic and very foolish idea of science. It takes lifetimes of training and an excellent brain to get that far."

Yohan Lee had risen abruptly during the foregoing speech and left the room. He had returned now and when Hardin finished speaking, he bent to his superior's ear. A whisper was exchanged and then a leaden cylinder. Then, with one short hostile look at the deputation, Lee resumed his chair.

Hardin turned the cylinder end for end in his hands, watching the deputation through his lashes. And then he opened it with a hard, sudden twist and only Sermak had the sense not to throw a rapid look at the rolled paper that fell out.

"In short, gentlemen," he said, "the Government is of the opinion that it knows what it is doing."

He read as he spoke. There were the lines of intricate, meaningless code that covered the page and the three penciled words scrawled in one corner that carried the message. He took it in at a glance and tossed it casually into the incinerator shaft.

"That," Hardin then said, "ends the interview, I'm afraid. Glad to have met you all. Thank you for coming." He shook hands with each in perfunctory fashion, and they filed out.

Hardin had almost gotten out of the habit of laughing, but after Sermak and his three silent partners were well out of earshot, he indulged in a dry chuckle and bent an amused look on Lee.

"How did you like that battle of bluffs, Lee?"

Lee snorted grumpily. "I'm not sure that *he* was bluffing. Treat him with kid gloves and he's quite liable to win the next election, just as he says."

"Oh, quite likely, quite likely—if nothing happens first."

"Make sure they don't happen in the wrong direction this time, Hardin. I tell you this Sermak has a following. What if he doesn't wait till the next election? There was a time when you and I put things through violently, in spite of your slogan about what violence is."

Hardin cocked an eyebrow. "You *are* pessimistic today, Lee. And singularly contrary, too, or you wouldn't speak of violence. Our own little putsch was carried through without

loss of life, you remember. It was a necessary measure put through at the proper moment, and went over smoothly, painlessly, and all but effortlessly. As for Sermak, well, he's up against a different proposition. You and I, Lee, aren't the Encyclopedists. *We* stand prepared. Sick your men on to these youngsters in a nice way, old fellow. Don't let them know they're being watched—but eyes open, you understand."

Lee laughed in sour amusement. "I'd be a fine one to wait for your orders, wouldn't I, Hardin? Sermak and his men have been under surveillance for a month now."

The mayor chuckled. "Got in first, did you? All right. By the way," he observed, and added softly, "Ambassador Verisof is returning to Terminus. Temporarily, I hope."

There was a short silence, faintly horrified, and then Lee said, "Was that the message? Are things breaking already?"

"Don't know. I can't tell till I hear what Verisof has to say. They may be, though. After all, they *have* to before election. But what are you looking so dead about?"

"Because I don't know how it's going to turn out. You're too deep, Hardin, and you're playing the game too close to your chest."

"Thou, too, Brutus," murmured Hardin. And aloud, "Does that mean you're going to join Sermak's new party?"

Lee smiled against his will. "All right. You win. How about lunch now?"

Hardin stretched and nodded. "That sounds good to me."

There are many epigrams attributed to Hardin—a confirmed epigrammatist—a good many of which are probably apocryphal. Nevertheless, it is reported that on a certain occasion, he said:

"It pays to be obvious, especially if you have a reputation for subtlety."

Poly Verisof had had occasion to act on that advice more than once for he was now in the fourteenth year of his double status on Anacreon—a double status the upkeep of which re-

minded him often and unpleasantly of a dance performed barefoot on hot metal.

To the people of Anacreon he was high priest, representative of that Foundation which, to those "barbarians," was the acme of mystery and the physical center of this religion they had created—with Hardin's help—in the last three decades. As such, he received a homage that had become horribly wearying, for from his soul he despised the ritual of which he was the center.

But to the King of Anacreon—the old one that had been, and the young grandson that was now on the throne—he was simply the ambassador of a power at once feared and coveted.

On the whole, it was an uncomfortable job, and his first trip to the Foundation in three years, despite the disturbing incident that had made it necessary, was something in the nature of a holiday.

And since it was not the first time he had had to travel in absolute secrecy, he again made use of Hardin's epigram on the uses of the obvious.

He changed into his civilian clothes—a holiday in itself—and boarded a passenger liner to the Foundation, second class. Once at Terminus, he threaded his way through the crowd at the spaceport and called up City Hall at a public visiphone.

He said, "My name is Jan Smite. I have an appointment with the mayor this afternoon."

The dead-voiced but efficient young lady at the other end made a second connection and exchanged a few rapid words, then said to Verisof in dry, mechanical tone, "Mayor Hardin will see you in half an hour, sir," and the screen went blank.

Where upon the ambassador to Anacreon brought the latest edition of the Terminus City *Journal,* sauntered casually to City Hall Park and, sitting down on the first empty bench he came to, read the editorial page, sport section and comic sheet while waiting. At the end of half an hour, he tucked the paper under his arm, entered City Hall and presented himself in the anteroom.

In doing all this he remained safely and thoroughly unrecognized, for since he was so entirely obvious, no one gave him a second look.

Hardin looked up at him and grinned. "Have a cigar! How was the trip?"

Verisof helped himself. "Interesting. There was a priest in the next cabin on his way here to take a special course in the preparation of radioactive synthetics—for the treatment of cancer, you know—"

"Surely, he didn't call it radioactive synthetics, now?"

"I guess *not!* It was the Holy Food to him."

The mayor smiled. "Go on."

"He inveigled me into a theological discussion and did his level best to elevate me out of sordid materialism."

"And never recognized his own high priest?"

"Without my crimson robe? Besides, he was a Smyrnian. It was an interesting experience, though. It *is* remarkable, Hardin, how the religion of science has grabbed hold. I've written an essay on the subject—entirely for my own amusement; it wouldn't do to have it published. Treating the problem sociologically, it would seem that when the old Empire began to rot at the fringes, it could be considered that science, as science, had failed the outer worlds. To be reaccepted it would have to present itself in another guise—and it has done just that. It works out beautifully when you use symbolic logic to help out."

"Interesting!" The mayor placed his arms behind his neck and said suddenly, "Start talking about the situation at Anacreon!"

The ambassador frowned and withdrew the cigar from his mouth. He looked at it distastefully and put it down. "Well, it's pretty bad."

"You wouldn't be here, otherwise."

"Scarcely. Here's the position. The key man at Anacreon is the Prince Regent, Wienis. He's King Lepold's uncle."

"I know. But Lepold is coming of age next year, isn't he? I believe he'll be sixteen in February."

"Yes." Pause, and then a wry addition. *"If* he lives. The king's father died under suspicious circumstances. A needle bullet through the chest during a hunt. It was called an accident."

"Hmph. I seem to remember Wienis the time I was on Anacreon, when we kicked them off Terminus. It was before your time. Let's see now. If I remember, he was a dark young fellow, black hair and a squint in his right eye. He had a funny hook in his nose."

"Same fellow. The hook and the squint are still there, but his hair's gray now. He plays the game dirty. Luckily, he's the most egregious fool on the planet. Fancies himself as a shrewd devil, too, which makes his folly the more transparent."

"That's usually the way."

"His notion of cracking an egg is to shoot an atomic blast at it. Witness the tax on Temple property he tried to impose just after the old king died two years ago. Remember?"

Hardin nodded thoughtfully, then smiled. "The priests raised a howl."

"They raised one you could hear way out to Lucreza. He's shown more caution in dealing with the priesthood since, but he still manages to do things the hard way. In a way, it's unfortunate for us; he has unlimited self-confidence."

"Probably an over-compensated inferiority complex. Younger sons of royalty get that way, you know."

"But it amounts to the same thing. He's foaming at the mouth with eagerness to attack the Foundation. He scarcely troubles to conceal it. And he's in a position to do it, too, from the standpoint of armament. The old king built up a magnificent navy, and Wienis hasn't been sleeping the last two years. In fact, the tax on Temple property was originally intended for further armament, and when that fell through he increased the income tax twice."

"Any grumbling at that?"

"None of serious importance. Obedience to appointed

authority was the text of every sermon in the kingdom for weeks. Not that Wienis showed *me* any gratitude."

"All right. I've got the background. Now what's happened?"

"Two weeks ago an Anacreonian merchant ship came across a derelict battle cruiser of the old Imperial Navy. It must have been drifting in space for at least three centuries."

Interest flickered in Hardin's eyes. He sat up. "Yes, I'd heard of that. The Board of Navigation has sent me a petition asking me to obtain the ship for purposes of study. It is in good condition, I understand."

"In entirely *too* good condition," responded Verisof, dryly. "When Wienis received your suggestion last week that he turn the ship over to the Foundation, he almost had convulsions."

"He hasn't answered yet."

"He won't—except with guns, or so he thinks. You see, he came to me on the day I left Anacreon and requested that the Foundation put this battle cruiser into fighting order and turn it over to the Anacreonian navy. He had the infernal gall to say that your note of last week indicated a plan of the Foundation's to attack Anacreon. He said that refusal to repair the battle cruiser would confirm his suspicions; and indicated that measures for the self-defense of Anacreon would be forced upon him. Those are his words. Forced upon him! And that's why I'm here."

Hardin laughed gently.

Verisof smiled and continued, "Of course, he expects a refusal, and it would be a perfect excuse—in his eyes—for immediate attack."

"I see that, Verisof. Well, we have at least six months to spare, so have the ship fixed up and present it with my compliments. Have it renamed the *Wienis* as a mark of our esteem and affection." He laughed again.

And again Verisof responded with the faintest trace of a smile, "I suppose it's the logical step, Hardin—but I'm worried."

"What about?"

"It's a *ship!* They could *build* in those days. Its cubic capacity is half again that of the entire Anacreonian navy. It's got atomic blasts capable of blowing up a planet, and a shield that could take a Q-beam without working up radiation. Too much of a good thing, Hardin—"

"Superficial, Verisof, superficial. You and I both know that the armament he now has could defeat Terminus handily, long before we could repair the cruiser for our own use. What does it matter, then, if we give him the cruiser as well? You know it won't ever come to actual war."

"I suppose so. Yes." The ambassador looked up. "But Hardin—"

"Well? Why do you stop? Go ahead."

"Look. This isn't my province. But I've been reading the paper." He placed the *Journal* on the desk and indicated the front page. "What's this all about?"

Hardin dropped a casual glance. " 'A group of Councilmen are forming a new political party.' "

"That's what it says." Verisof fidgeted. "I know you're in better touch with internal matters than I am, but they're attacking you with everything short of physical violence. How strong are they?"

"Damned strong. They'll probably control the Council after next election."

"Not before?" Verisof looked at the mayor obliquely. "There are ways of gaining control besides elections."

"Do you take me for Wienis?"

"No. But repairing the ship will take months and an attack after that is certain. Our yielding will be taken as a sign of appalling weakness and the addition of the Imperial Cruiser will just about double the strength of Wienis' navy. He'll attack as sure as I'm a high priest. Why take chances? Do one of two things. Either reveal the plan of campaign to the Council, or force the issue with Anacreon now!"

Hardin frowned. "Force the issue now? Before the crisis

comes? It's the one thing I mustn't do. There's Hari Seldon and the Plan, you know."

Verisof hesitated, then muttered, "You're absolutely sure, then, that there is a Plan?"

"There can scarcely be any doubt," came the stiff reply. "I was present at the opening of the Time Vault and Seldon's recording revealed it then."

"I didn't mean that, Hardin. I just don't see how it could be possible to chart history for a thousand years ahead. Maybe Seldon overestimated himself." He shriveled a bit at Hardin's ironical smile, and added, "Well, I'm no psychologist."

"Exactly. None of us are. But I did receive some elementary training in my youth—enough to know what psychology is capable of, even if I can't exploit its capabilities myself. There's no doubt but that Seldon did exactly what he claims to have done. The Foundation, as he says, was established as a scientific refuge—the means by which the science and culture of the dying Empire was to be preserved through the centuries of barbarism that have begun, to be rekindled in the end into a second Empire."

Verisof nodded, a trifle doubtfully. "Everyone knows that's the way things are *supposed* to go. But can we afford to take chances? Can we risk the present for the sake of a nebulous future?"

"We must—because the future isn't nebulous. It's been calculated out by Seldon and charted. Each successive crisis in our history is mapped and each depends in a measure on the successful conclusion of the ones previous. This is only the second crisis and Space knows what effect even a trifling deviation would have in the end."

"That's rather empty speculation."

"*No!* Hari Seldon said in the Time Vault, that at each crisis our freedom of action would become circumscribed to the point where only one course of action was possible."

"So as to keep us on the straight and narrow?"

"So as to keep us from deviating, yes. But, conversely, as long as *more* than one course of action is possible, the crisis has not been reached. We *must* let things drift so long as we possibly can, and by space, that's what I intend doing."

Verisof didn't answer. He chewed his lower lip in a grudging silence. It had only been the year before that Seldon had first discussed the problem with him—the real problem; the problem of countering Anacreon's hostile preparations. And then only because he, Verisof, had balked at further appeasement.

Hardin seemed to follow his ambassador's thoughts. "I would much rather never to have told you anything about this."

"What makes you say that?" cried Verisof, in surprise.

"Because there are six people now—you and I, the other three ambassadors and Yohan Lee—who have a fair notion of what's ahead; and I'm damned afraid that it was Seldon's idea to have no one know."

"Why so?"

"Because even Seldon's advanced psychology was limited. It could not handle too many independent variables. He couldn't work with individuals over any length of time; any more than you could apply the kinetic theory of gases to single molecules. He worked with mobs, populations of whole planets, and only *blind* mobs who do not possess foreknowledge of the results of their own actions."

"That's not plain."

"I can't help it. I'm not psychologist enough to explain it scientifically. But this you know. There are no trained psychologists on Terminus and no mathematical texts on the science. It is plain that he wanted no one on Terminus capable of working out the future in advance. Seldon wanted us to proceed blindly—and therefore correctly—according to the law of mob psychology. As I once told you, I never knew where we were heading when I first drove out the Anacreonians. My idea had

been to maintain balance of power, no more than that. It was only afterward that I thought I saw a pattern in events; but I've done my level best not to act on that knowledge. Interference due to foresight would have knocked the Plan out of kilter."

Verisof nodded thoughtfully. "I've heard arguments almost as complicated in the Temples back on Anacreon. How do you expect to spot the right moment of action?"

"It's spotted already. You admit that once we repair the battle cruiser nothing will stop Wienis from attacking us. There will no longer be any alternative in that respect."

"Yes."

"All right. That accounts for the external aspect. Meanwhile, you'll further admit that the next election will see a new and hostile Council that will force action against Anacreon. There is no alternative there."

"Yes."

"And as soon as all the alternatives disappear, the crisis has come. Just the same—I get worried."

He paused, and Verisof waited. Slowly, almost reluctantly, Hardin continued, "I've got the idea—just a notion—that the external and internal pressures were planned to come to a head simultaneously. As it is, there's a few months difference. Wienis will probably attack before spring, and elections are still a year off."

"That doesn't sound important."

"I don't know. It may be due merely to unavoidable errors of calculation, or it might be due to the fact that I knew too much. I tried never to let my foresight influence my action, but how can I tell? And what effect will the discrepancy have? Anyway," he looked up, "there's one thing I've decided."

"And what's that?"

"When the crisis does begin to break, I'm going to Anacreon. I want to be on the spot. . . . Oh, that's enough, Verisof. It's getting late. Let's go out and make a night of it. I want some relaxation."

"Then get it right here," said Verisof. "I don't want to be

recognized, or you know what this new party your precious Councilmen are forming would say. Call for the brandy."

And Hardin did—but not for too much.

In the ancient days when the Glactic Empire had embraced the Galaxy, and Anacreon had been the richest of the prefects of the Periphery, more than one emperor had visited the Viceregal Palace in state. And not one had left without at least one effort to pit his skill with air speedster and needle gun against the feathered flying fortress they called the Nyak-bird.

The fame of Anacreon had withered to nothing with the decay of the times. The Viceregal Palace was a drafty mass of ruins except for the wing that Foundation workmen had restored. And no Emperor had been seen or heard of in Anacreon for two hundred years.

But Nyak hunting was still the royal sport and a good eye with the needle gun still the first requirement of Anacreon's kings.

Lepold I, king of Anacreon and—as was invariably, but untruthfully added—Lord of the Outer Dominions, though not yet sixteen had already proved his skill many times over. He had brought down his first Nyak when scarcely thirteen; had brought down his tenth the week after his accession to the throne; and was returning now from his forty-sixth.

"Fifty before I come of age," he had exulted. "Who'll take the wager?"

But courtiers don't take wagers against the king's skill. There is the deadly danger of winning. So no one did, and the king left to change his clothes in high spirits.

"Lepold!"

The king stopped mid-step at the one voice that could cause him to do so. He turned sulkily.

Wienis stood upon the threshold of his chambers and beetled at his young nephew.

"Send them away," he motioned impatiently. "Get rid of them."

The king nodded curtly and the two chamberlains bowed and backed down the stairs. Lepold entered his uncle's room.

Wienis stared at the king's hunting suit morosely. "You'll have more important things to tend to than Nyak hunting soon enough."

He turned his back and stumped to his desk. Since he had grown too old for the rush of air, the perilous dive within wing-beat of the Nyak, the roll and climb of the speedster at the motion of a foot, he had soured upon the whole sport.

Lepold appreciated his uncle's sour-grapes attitude and it was not without malice that he began enthusiastically, "But you should have been with us today, uncle. We flushed one in the wilds of Samia that was a monster. And game as they come. We had it out for two hours over at least seventy square miles of ground. And then I got to Sunwards"—he was motioning graphically, as though he were once more in his speedster—"and dived torque-wise. Caught him on the rise just under the left wing at quarters. It maddened him and he canted athwart. I took his dare and veered a-left, waiting for the plummet. Sure enough, down he came. He was within wing-beat before I moved and then—"

"Lepold!"

"Well!—I got him."

"I'm sure you did. Now *will* you attend?"

The king shrugged and gravitated to the end table where he nibbled at a Lera nut in quite an unregal sulk. He did not dare to meet his uncle's eyes.

Wienis said, by way of preamble, "I've been to the ship today."

"What ship?"

"There is only one ship. *The* ship. The one the Foundation is repairing for the navy. The old Imperial cruiser. Do I make myself sufficiently plain?"

"That one? You see, I told you the Foundation would repair it if we asked them to. It's all poppycock, you know, that story of yours about their wanting to attack us. Because if they

did, why would they fix the ship? It doesn't make sense, you know."

"Lepold, you're a fool!"

The king, who had just discarded the shell of the Lera nut and was lifting another to his lips, flushed.

"Well now, look here," he said, with anger that scarcely rose above peevishness, "I don't think you ought to call me that. You forget yourself. I'll be of age in two months, you know."

"Yes, and you're in a fine position to assume regal responsibilities. If you spent half the time on public affairs that you do on Nyak hunting, I'd resign the regency directly with a clear conscience."

"I don't care. That has nothing to do with the case, you know. The fact is that even if you are the regent and my uncle, I'm still king and you're still my subject. You oughtn't to call me a fool and you oughtn't to sit in my presence, anyway. You haven't asked my permission. I think you ought to be careful, or I might do something about it—pretty soon."

Wienis' gaze was cold. "May I refer to you as 'your majesty'?"

"Yes."

"Very well! You are a fool, your majesty!"

His dark eyes blazed from beneath his grizzled brows and the young king sat down slowly. For a moment, there was sardonic satisfaction in the regent's face, but it faded quickly. His thick lips parted in a smile and one hand fell upon the king's shoulder.

"Never mind, Lepold. I should not have spoken harshly to you. It is difficult sometimes to behave with true propriety when the pressure of events is such as— You understand?" But if the words were conciliatory, there was something in his eyes that had not softened.

Lepold said uncertainly, "Yes. Affairs of State are deuced difficult, you know." He wondered, not without apprehension whether he were not in for a dull siege of meaningless details

on the year's trade with Smyrno and the long, wrangling dispute over the sparsely settled worlds of the Red Corridor.

Wienis was speaking again. "My boy, I had thought to speak of this to you earlier, and perhaps I should have, but I know that your youthful spirits are impatient of the dry detail of statecraft."

Lepold nodded. "Well, that's all right—"

His uncle broke in firmly and continued, "However, you will come of age in two months. Moreover, in the difficult times that are coming, you will have to take a full and active part. You will be *king* henceforward, Lepold."

Again Lepold nodded, but his expression was quite blank.

"There will be war, Lepold."

"War! But there's been truce with Smyrno—"

"Not Smyrno. The Foundation itself."

"But, uncle, they've agreed to repair the ship. You said—"

His voice choked off at the twist of his uncle's lip.

"Lepold"—some of the friendliness had gone—"we are to talk man to man. There is to be war with the Foundation, whether the ship is repaired or not; all the sooner, in fact, since it is being repaired. The Foundation is the source of power and might. All the greatness of Anacreon; all its ships and its cities and its people and its commerce depend on the dribbles and leavings of power that the Foundation have given us grudgingly. I remember the time—I, myself—when the cities of Anacreon were warmed by the burning of coal and oil. But never mind that; you would have no conception of it."

"It seems," suggested the king, timidly, "that we ought to be grateful—"

"Grateful?" roared Wienis. "Grateful that they begrudge us the merest dregs, while keeping space knows what for themselves—and keeping it with what purpose in mind? Why, only that they may some day rule the Galaxy."

His hand came down on his nephew's knee, and his eyes narrowed. "Lepold, you are king of Anacreon. Your children and your children's children may be kings of the universe—if

you have the power that the Foundation is keeping from us!"

"There's something in that." Lepold's eyes gained a sparkle and his back straightened. "After all, what right have they to keep it to themselves. Not fair, you know. Anacreon counts for something, too."

"You see, you're beginning to understand. And now, my boy, what if Smyrno decides to attack the Foundation for its own part and thus gains all that power? How long do you suppose we could escape becoming a vassal power? How long would you hold your throne?"

Lepold grew excited. "Space, yes. You're absolutely right, you know. We must strike first. It's simply self-defense."

Wienis' smile broadened slightly. "Furthermore, once, at the very beginning of the reign of your grandfather, Anacreon actually established a military base on the Foundation's planet, Terminus—a base vitally needed for national defense. We were forced to abandon that base as a result of the machinations of the leader of that Foundation, a sly cur, a scholar, with not a drop of noble blood in his veins. You understand, Lepold? Your grandfather was humiliated by this commoner. I remember him! He was scarcely older than myself when he came to Anacreon with his devil's smile and devil's brain—and the power of the other three kingdoms behind him, combined in cowardly union against the greatness of Anacreon."

Lepold flushed and the sparkle in his eyes blazed. "By Seldon, if I had been my grandfather, I would have fought even so."

"No, Lepold. We decided to wait—to wipe out the insult at a fitter time. It had been your father's hope, before his untimely death, that he might be the one to— Well, well!" Wienis turned away for a moment. Then, as if stifling emotion, "He was my brother. And yet, if his son were—"

"Yes, uncle, I'll not fail him. I have decided. It seems only proper that Anacreon wipe out this nest of trouble makers, and that immediately."

"No, not immediately. First, we must wait for the repairs

of the battle cruiser to be completed. The mere fact that they are willing to undertake these repairs proves that they fear us. The fools attempt to placate us, but we are not to be turned from our path, are we?"

And Lepold's fist slammed against his cupped palm. "Not while *I* am king in Anacreon."

Wienis' lip twitched sardonically. "Besides which we must wait for Slavor Hardin to arrive."

"Salvor Hardin!" The king grew suddenly round-eyed, and the youthful contour of his beardless face lost the almost hard lines into which they had been compressed.

"Yes, Lepold, the leader of the Foundation himself is coming to Anacreon on your birthday—probably to soothe us with buttered words. But it won't help him."

"Salvor Hardin!" It was the merest murmur.

Wienis frowned. "Are you afraid of the name? It is the same Salvor Hardin, who on his previous visit, ground our noses into the dust. You're not forgetting that deadly insult to the royal house? And from a commoner. The dregs of the gutter."

"No. I guess not. No, I won't. I won't! We'll pay him back—but . . . but—" I'm afraid—a little."

The regent rose. "Afraid? Of what? Of what, you young—" He choked off.

"It would be . . . uh . . . sort of blasphemous, you know, to attack the Foundation. I mean—" He paused.

"Go on."

Lepold said confusedly, "I mean, if there were *really* a Galactic Spirit, he . . . uh . . . it mightn't like it. Don't you think?"

"No, I don't," was the hard answer. Wienis sat down again and his lips twisted in a queer smile. "And so you really bother your head a great deal over the Galactic Spirit, do you? That's what comes of letting you run wild. You've been listening to Verisof quite a bit, I take it."

"He's explained a great deal—"

"About the Galactic Spirit?"

"Yes."

"Why, you unweaned cub, he believes in that mummery a good deal less than I do, and I don't believe in it at all. How many times have you been told that all this talk is nonsense?"

"Well, I know that. But Verisof says—"

"Damnation to Verisof. It's nonsense."

There was a short, rebellious silence, and then Lepold said, "Everyone believes it just the same. I mean all this talk about the Prophet Hari Seldon and how he appointed the Foundation to carry out his commandments that there might some day be a return of the Earthly Paradise; and how anyone who disobeys his commandments will be destroyed for eternity. They believe it. I've presided at festivals, and I'm sure they do."

"Yes, *they* do; but *we* don't. And you may be thankful it's so, for according to this foolishness, you are king by divine right —and are semidivine yourself. Very handy. It eliminates all possibilities of revolts and insures absolute obedience in everything. And that is why, Lepold, you must take an active part in ordering the war against the Foundation. I am only regent, and quite human. You are king, and more than half a god—to them."

"But I suppose I'm not really," said the king, reflectively.

"No, not really," came the ironic response, "but you are to everyone but the people of the Foundation. Get that? To everyone but those of the Foundation. Once they are removed there will be no one to deny you the godhead. Think of that!"

"And after that we will ourselves be able to operate the power boxes of the temples and the ships that fly without men and the holy food that cures cancer and all the rest? Verisof said only those blessed with the Galactic Spirit could—"

"Yes, Verisof said! Verisof, next to Salvor Hardin, is your greatest enemy. Stay with me, Lepold, and don't worry about them. Together we will recreate an empire—not just the king-

dom of Anacreon—but one comprising every one of the billions of suns of the Galaxy. Is that better than a wordy 'Earthly Paradise'?"

"Ye-es."

"Can Verisof promise more?"

"No."

"Very well." His voice became peremptory. "I suppose we may consider the matter settled." He waited for no answer. "Get along. I'll be down later. And just one thing, Lepold."

The young king turned on the threshold.

Wienis was smiling with all but his eyes. "Be careful on these Nyak hunts, my boy. Since the unfortunate accident to your father, I have had the strangest presentiments concerning you, at times. In the confusion, with needle guns thickening the air with darts, one can never tell. You *will* be careful, I hope. And you'll do as I say about the Foundation, won't you?"

Lepold's eyes widened and dropped away from those of his uncle. "Yes—certainly."

"Good!" He stared after his departing nephew, expressionlessly, and returned to his desk.

And Lepold's thoughts as he left were somber and not unfearful. Perhaps it *would* be best to defeat the Foundation and gain the power Wienis spoke of. But afterward, when the war was over and he was secure on his throne— He became acutely conscious of the fact that Wienis and his two arrogant sons were at present next in line to the throne.

But he was king. And kings could order people shot.

Even uncles and cousins.

Next to Sermak himself, Lewis Bort was most active in rallying those dissident elements which had fused into the now-vociferous Action Party. Yet he had not been one of the deputation that had called on Salvor Hardin almost half a year previously. That this was so was not due to any lack of recognition of his efforts; quite the contrary. He was absent for the very good reason that he was on Anacreon's capital world at the time.

He visited it as a private citizen. He saw no official and he did nothing of importance. He merely watched the obscure corners of the busy planet and poked his stubby nose into dusty crannies.

He arrived home toward the end of a short winter day that had started with clouds and was finishing with snow and within an hour was seated at the octagonal table in Sermak's home.

His first words were not calculated to improve the atmosphere of a gathering already considerably depressed by the deepening snow-filled twilight outside.

"I'm afraid," he said, "that our position is what is usually termed, in melodramatic phraseology, a 'Lost Cause.' "

"You think so?" said Sermak, gloomily.

"It's gone past thought, Sermak. There's no room for any other opinion."

"Armaments—" began Dokor Walto, somewhat officiously, but Bort broke in at once.

"Forget that. That's an old story." His eyes traveled round the circle. "I'm referring to the people. I admit that it was my idea originally that we attempt to foster a palace rebellion of some sort to install as king someone more favorable to the Foundation. It was a good idea. It still is. The only trifling flaw about it is that it is impossible. The great Salvor Hardin saw to that."

Sermak said sourly, "If you'd give us the details, Bort—"

"Details! There aren't any! It isn't as simple as that. It's the whole damned situation on Anacreon. It's this religion the Foundation has established. It works!"

"Well!"

"You've got to *see* it work to appreciate it. All you see here is that we have a large school devoted to the training of priests, and that occasionally a special show is put on in some obscure corner of the city for the benefit of pilgrims—and that's all. The whole business hardly affects us as a general thing. But on Anacreon—"

Lem Tarki smoothed his prim little Vandyke with one

finger, and cleared his throat. "What kind of a religion is it? Hardin's always said that it was just a fluffy flummery to get them to accept our science without question. You remember, Sermak, he told us that day—"

"Hardin's explanations," reminded Sermak, "don't often mean much at face value. But what kind of a religion is it, Bort?"

Bort considered. "Ethically, it's fine. It scarcely varies from the various philosophies of the old Empire. High moral standards and all that. There's nothing to complain about it from that viewpoint. Religion is one of the great civilizing influences of history and in that respect, it's fulfilling—"

"We know that," interrupted Sermak, impatiently. "Get to the point."

"Here it is." Bort was a trifle disconcerted, but didn't show it. "The religion—which the Foundation has fostered and encouraged, mind you—is built on strictly authoritarian lines. The priesthood has sole control of the instruments of science we have given Anacreon, but they've learned to handle these tools only empirically. They believe in this religion entirely, and in the . . . uh . . . spiritual values of the power they handle. For instance, two months ago some fool tampered with the power plant in the Thessalekian Temple—one of the large ones. He blew up five city blocks, of course. It was considered divine vengeance by everyone, including the priests."

"I remember. The papers had some garbled version of the story at the time. I don't see what you're driving at."

"Then, listen," said Bort, stiffly. "The priesthood forms a hierarchy at the apex of which is the king, who is regarded as a sort of minor god. He's an absolute monarch by divine right, and the people believe it, thoroughly, and the priests, too. You can't overthrow a king like that. *Now* do you see the point?"

"Hold on," said Walto, at this point. "What did you mean when you said Hardin's done all this? How does he come in?"

Bort glanced at his questioner bitterly. "The Foundation has fostered this delusion assiduously. We've put all our scientific backing behind the hoax. There isn't a festival at which the king does not preside surrounded by a radioactive aura shining forth all over his body and raising itself like a coronet above his head. Anyone touching him is severely burned. He can move from place to place through the air at crucial moments, supposedly by inspiration of divine spirit. He fills the temple with a pearly, internal light at a gesture. There is no end to these quite simple tricks that we perform for his benefit; but even the priests believe them, while working them personally."

"Bad!" said Sermak, biting his lip.

"I could cry—like the fountain in City Hall Park," said Bort, earnestly, "when I think of the chance we muffed. Take the situation thirty years ago, when Hardin saved the Foundation from Anacreon—Space held up. At that time, the Anacreonian people had no real conception of the fact that the Empire was running down. They had been more or less running their own affairs since the Zeonian revolt, but even after communications broke down and Lepold's pirate of a grandfather made himself king, they never quite realized the Empire had gone kaput.

"If the emperor had had the nerve to try, he could have taken over again with two cruisers and with the help of the internal revolt that would have certainly sprung to life. And we, *we* could have done the same; but no, Hardin established monarch worship. Personally, I don't understand it. Why? Why? Why?"

"What," demanded Jaim Orsy, suddenly, "does Verisof do? There was a day when he was an advanced Actionist. What's he doing there? Is he blind, too?"

"I don't know," said Bort, curtly. "He's high priest to them. As far as I know, he does nothing but act as adviser to the priesthood on technical details. Figurehead, blast him, figurehead!"

There was silence all round, and all eyes turned to Sermak. The young party leader was biting a fingernail nervously, and then said loudly, "No good. It's fishy!"

He looked around him, and added more energetically, "Is Hardin then such a fool?"

"Seems to be," shrugged Bort.

"Never! There's something wrong. To cut our own throats so thoroughly and so hopelessly would require colossal stupidity. More than Hardin could possibly have even if he were a fool, which I deny. On the one hand, to establish a religion that would wipe out all chance of internal troubles. On the other hand, to arm Anacreon with all weapons of warfare. I don't see it."

"The matter *is* a little obscure, I admit," said Bort, "but the facts are there. What else can we think?"

Waldo said, jerkily, "Outright treason. He's in their pay."

But Sermak shook his head impatiently. "I don't see that, either. The whole affair is as insane and meaningless— Tell me, Bort, have you heard anything about a battle cruiser that the Foundation is supposed to have put into shape for use in the Anacreon navy?"

"Battle cruiser?"

"An old Imperial cruiser—"

"No, I haven't. But that doesn't mean much. The navy yards are religious sanctuaries completely inviolate on the part of the lay public. No one ever hears anything about the fleet."

"Well, rumors have leaked out. Some of the Party have brought the matter up in Council. Hardin never denied it, you know. His spokesmen denounced rumor mongers and let it go at that. It might have significance."

"It's of a piece with the rest," said Bort. "If true, it's absolutely crazy. But it wouldn't be worse than the rest."

"I suppose," said Orsy, "Hardin hasn't any secret weapon waiting. That might—"

"Yes," said Sermak, viciously, "a huge jack-in-the-box that will jump out at the psychological moment and scare old Wienis

into fits. The Foundation may as well blow itself out of existence and save itself the agony of suspense if it has to depend on any secret weapon."

"Well," said Orsy, changing the subject hurriedly, "the question comes down to this: How much time have we left? Eh, Bort?"

"All right. It is the question. But don't look at me; *I* don't know. The Anacreonian press never mentions the Foundation at all. Right now, it's full of the approaching celebrations and nothing else. Lepold is coming of age next week, you know."

"We have months then." Walto smiled for the first time that evening. "That gives us time—"

"That gives us time, my *foot*," ground out Bort, impatiently. "The king's a god, I tell you. Do you suppose he has to carry on a campaign of propaganda to get his people into fighting spirit? Do you suppose he has to accuse us of aggression and pull out all stops on cheap emotionalism? When the time comes to strike, Lepold gives the order and the people fight. Just like that. That's the damnedness of the system. You don't question a god. He may give the order tomorrow for all I know; and you can wrap tobacco round that and smoke it."

Everyone tried to talk at once and Sermak was slamming the table for silence, when the front door opened and Levi Norast stamped in. He bounded up the stairs, overcoat on, trailing snow.

"Look at that!" he cried, tossing a cold, snow-speckled newspaper onto the table. "The visicasters are full of it, too."

The newspaper was unfolded and five heads bent over it.

Sermak said, in a hushed voice, "Great Space, he's going to Anacreon! *Going to Anacreon!*"

"It *is* treason," squeaked Tarki, in sudden excitement. "I'll be damned if Walto isn't right. He's sold us out and now he's going there to collect his wage."

Sermak had risen. "We've no choice now. I'm going to ask the Council tomorrow that Hardin be impeached. And if *that* fails—"

The snow had ceased, but it caked the ground deeply now and the sleek ground car advanced through the deserted streets with lumbering effort. The murky gray light of incipient dawn was cold not only in the poetical sense but also in a very literal way—and even in the then turbulent state of the Foundation's politics, no one, whether Actionist or pro-Hardin found his spirits sufficiently ardent to begin street activity that early.

Yohan Lee did not like that and his grumblings grew audible. "It's going to look bad, Hardin. They're going to say you sneaked away."

"Let them say it if they wish. I've got to get to Anacreon and I want to do it without trouble. Now that's enough, Lee."

Hardin leaned back into the cushioned seat and shivered slightly. It wasn't cold inside the well-heated car, but there was something frigid about a snow-covered world, even through glass, that annoyed him.

He said, reflectively, "Some day when we get around to it we ought to weather-condition Terminus. It could be done."

"I," replied Lee, "would like to see a few other things done first. For instance, what about weather-conditioning Sermak. A nice, dry cell fitted for twenty-five centigrade all year round would be just right."

"And then I'd *really* need bodyguards," said Hardin, "and not just those two." He indicated two of Lee's bully-boys sitting up front with the driver, hard eyes on the empty streets, ready hands at their atom blasts. "You evidently want to stir up civil war."

"*I* do? There are other sticks in the fire and it won't require much stirring, I can tell you." He counted off on blunt fingers, "One: Sermak raised hell yesterday in the City Council and called for an impeachment."

"He had a perfect right to do so," responded Hardin, coolly. "Besides which, his motion was defeated 206 to 184."

"Certainly. A majority of twenty-two when we had counted on sixty as a minimum. Don't deny it; you know you did."

"It was close," admitted Hardin.

"All right. And two: After the vote, the fifty-nine members of the Actionist Party reared up on their hind legs and stamped out of the Council Chambers."

Hardin was silent, and Lee continued, "And three: Before leaving, Sermak howled that you were a traitor, that you were going to Anacreon to collect your thirty pieces of silver, that the Chamber majority in refusing to vote impeachment had participated in the treason, and that the name of their party was not 'Actionist' for nothing. What does *that* sound like?"

"Trouble, I suppose."

"And now you're chasing off at daybreak, like a criminal. You ought to face them, Hardin—and if you have to, declare martial law, by Space!"

"Violence is the last refuge—"

"—Of the incompetent. Nuts!"

"All right. We'll see. Now listen to me carefully, Lee. Thirty years ago, the Time Vault opened, and on the fiftieth anniversary of the beginning of the Foundation, there appeared a Hari Seldon recording to give us our first idea of what was really going on."

"I remember," Lee nodded reminiscently, with a half smile. "It was the day we took over the government."

"That's right. It was the time of our first major crisis. This is our second—and three weeks from date will be the eightieth anniversary of the beginning of the Foundation. Does that strike you as in any way significant?"

"You mean he's coming again?"

"I'm not finished. Seldon never said anything about returning, you understand, but that's of a piece with his whole plan. He's always done his best to keep all foreknowledge from us. Nor is there any way of telling whether the radium lock is set for further openings short of dismantling the Vault—and it's probably set to destroy itself if we were to try that. I've been there every anniversary since the first appearance, just on the chance. He's never shown up, but this is the first time since then that there's really been a crisis."

"Then he'll come."

"Maybe. I don't know. However, this is the point. At today's session of the Council, just after you announce that I have left for Anacreon, you will further announce, officially, that on March 14th next, there will be another Hari Seldon recording, containing a message of the utmost importance regarding the recent successfully concluded crisis. That's very important, Lee. Don't add anything more no matter how many questions are asked."

Lee stared. "Will they believe it?"

"That doesn't matter. It will confuse them, which is all I want. Between wondering whether it is true and what I mean by it if it isn't—they'll decide to postpone action till after March 14th. I'll be back considerably before then."

Lee looked uncertain. "But that 'successfully concluded.' That's bull!"

"Highly confusing bull. Here's the airport!"

The waiting spaceship bulked somberly in the dimness. Hardin stamped through the snow toward it and at the open air lock turned about with outstretched hand.

"Good-by, Lee. I hate to leave you in the frying pan like this, but there's not another I can trust. Now please keep out of the fire."

"Don't worry. The frying pan is hot enough. I'll follow orders." He stepped back, and the air lock closed.

Salvor Hardin did not travel to the planet Anacreon—from which planet the kingdom derived its name—immediately. It was only on the day before the coronation that he arrived, after having made flying visits to eight of the larger stellar systems of the kingdom, stopping only long enough to confer with the local representatives of the Foundation.

The trip left him with an oppressive realization of the vastness of the kingdom. It was a little splinter, an insignificant fly speck compared to the inconceivable reaches of the Galactic Empire of which it had once formed so distinguished a part;

but to one whose habits of thought had been built around a single planet, and a sparsely settled one at that, Anacreon's size in area and population was staggering.

Following closely the boundaries of the old Prefect of Anacreon, it embraced twenty-five stellar systems, six of which included more than one habitable world. The population of nineteen billion, though still far less than it had been in the Empire's heyday was rising rapidly with the increasing scientific development fostered by the Foundation.

And it was only now that Hardin found himself floored by the magnitude of *that* task. Even in thirty years, only the capital world had been completely powered. The outer provinces still possessed immense stretches where atomic power had not yet been re-introduced. Even the progress that *had* been made might have been impossible had it not been for the still workable relics left over by the ebbing tide of Empire.

When Hardin did arrive at the capital world, it was to find all normal business at an absolute standstill. In the outer provinces there had been and still were celebrations; but here on the planet Anacreon, not a person but took feverish part in the hectic religious pageantry that heralded the coming-of-age of their god-king, Lepold.

Hardin had been able to snatch only half an hour from a haggard and harried Verisof before his ambassador was forced to rush off to supervise still another temple festival. But the half-hour was a most profitable one, and Hardin prepared himself for the night's fireworks well satisfied.

In all, he acted as an observer, for he had no stomach for the religious tasks he would undoubtedly have had to undertake if his identity became known. So, when the palace's ballroom filled itself with a glittering horde of the kingdom's very highest and most exalted nobility, he found himself hugging the wall, little noticed or totally ignored.

He had been introduced to Lepold as one of a long line of introducees, and from a safe distance, for the king stood apart in lonely and impressive grandeur, surrounded by his deadly

blaze of radioactive aura. And in less than an hour this same king would take his seat upon the massive throne of rhodium-iridium alloy with jewel-set gold chasings, and then, throne and all would rise majestically into the air, skim the ground slowly to hover before the great window from which the great crowds of common folk could see their king and shout themselves into near apoplexy. The throne would not have been so massive, of course, if it had not had an atomic motor built into it.

It was past eleven. Hardin fidgeted and stood on his toes to better his view. He resisted an impulse to stand on a chair. And then he saw Wienis threading through the crowd toward him and he relaxed.

Wienis' progress was slow. At almost every step, he had to pass a kindly sentence with some revered noble whose grandfather had helped Lepold's grandfather brigandize the kingdom and had received a dukedom therefor.

And then he disentangled himself from the last uniformed peer and reached Hardin. His smile crooked itself into a smirk and his black eyes peered from under grizzled brows with glints of satisfaction in them.

"My dear Hardin," he said, in a low voice, "you must expect to be bored, when you refuse to announce your identity."

"I am not bored, your highness. This is all extremely interesting. We have no comparable spectacles on Terminus, you know."

"No doubt. But would you care to step into my private chambers, where we can speak at greater length and with considerably more privacy?"

"Certainly."

With arms linked, the two ascended the staircase, and more than one dowager duchess raised her lorgnette in surprise and wonder at the identity of this insignificantly dressed and uninteresting-looking stranger on whom such signal honor was being conferred by the prince regent.

In Wienis' chambers, Hardin relaxed in perfect comfort

and accepted with a murmur of gratitude the glass of liquor that had been poured out by the regent's own hand.

"Locris wine, Hardin," said Wienis, "from the royal cellars. The real thing—two centuries in age. It was laid down ten years before the Zeonian Rebellion."

"A really royal drink," agreed Hardin, politely. "To Lepold I, King of Anacreon."

They drank, and Wienis added blandly, at the pause, "And soon to be Emperor of the Periphery, and further, who knows? The Galaxy may some day be reunited."

"Undoubtedly. By Anacreon?"

"Why not? With the help of the Foundation, our scientific superiority over the rest of the Periphery would be undisputable."

Hardin set his empty glass down and said, "Well, yes, except that, of course, the Foundation is bound to help any nation that requests scientific aid of it. Due to the high idealism of our government and the great moral purpose of our founder, Hari Seldon, we are unable to play favorites. That can't be helped, your highness."

Wienis' smile broadened. "The Galactic Spirit, to use the popular cant, helps those who help themselves. I quite understand that, left to itself, the Foundation would never cooperate."

"I wouldn't say that. We repaired the Imperial cruiser for you, though my board of navigation wished it for themselves for research purposes."

The regent repeated the last words ironically. "Research purposes! Yes! Yet you would not have repaired it, had I not threatened war."

Hardin made a deprecatory gesture. "I don't know."

"*I* do. And that threat always stood."

"And still stands now?"

"Now it is rather too late to speak of threats." Wienis had cast a rapid glance at the clock on his desk. "Look here, Hardin, you were on Anacreon once before. You were young then; we

were both young. But even then we had entirely different ways of looking at things. You're what they call a man of peace, aren't you?"

"I suppose I am. At least, I consider violence an uneconomical way of attaining an end. There are always better substitutes, though they may sometimes be a little less direct."

"Yes. I've heard of your famous remark: 'Violence is the last refuge of the incompetent.' And yet"—the regent scratched one ear gently in affected abstraction—"I wouldn't call myself exactly incompetent."

Hardin nodded politely and said nothing.

"And in spite of that," Wienis continued, "I have always believed in direct action. I have believed in carving a straight path to my objective and following that path. I have accomplished much that way, and fully expect to accomplish still more."

"I know," interrupted Hardin. "I believe you are carving a path such as you describe for yourself and your children that leads directly to the throne, considering the late unfortunate death of the king's father—your elder brother—and the king's own precarious state of health. He *is* in a precarious state of health, is he not?"

Wienis frowned at the shot, and his voice grew harder. "You might find it advisable, Hardin, to avoid certain subjects. You may consider yourself privileged as mayor of Terminus to make . . . uh . . . injudicious remarks, but if you do, please disabuse yourself of the notion. I am not one to be frightened at words. It has been my philosophy of life that difficulties vanish when faced boldly, and I have never turned my back upon one yet."

"I don't doubt that. Which particular difficulty are you refusing to turn your back upon at the present moment?"

"The difficulty, Hardin, of persuading the Foundation to co-operate. Your policy of peace, you see, has led you into making several very serious mistakes, simply because you under-

estimated the boldness of your adversary. Not everyone is as afraid of direct action as you are."

"For instance?" suggested Hardin.

"For instance, you came to Anacreon alone and accompanied me to my chambers alone."

Hardin looked about him. "And what is wrong with that?"

"Nothing," said the regent, "except that outside this room are five palace guards, well armed and ready to shoot. I don't think you can leave, Hardin."

The mayor's eyebrows lifted, "I have no immediate desire to leave. Do you then fear me so much?"

"I don't fear you at all. But this may serve to impress you with my determination. Shall we call it a gesture?"

"Call it what you please," said Hardin, indifferently. "I shall not discommode myself over the incident, whatever you choose to call it."

"I'm sure that attitude will change with time. But you have made another error, Hardin, a more serious one. It seems that the planet Terminus is almost wholly undefended."

"Naturally. What have we to fear? We threaten no one's interest and serve all alike."

"And while remaining helpless," Wienis went on, "you kindly helped us arm ourselves, aiding us particularly in the development of a navy of our own, a great navy. In fact, a navy which, since your donation of the Imperial cruiser, is quite irresistible."

"Your highness, you are wasting time." Hardin made as if to rise from his seat. "If you mean to declare war, and are informing me of the fact, you will allow me to communicate with my government at once."

"Sit down, Hardin. I am not declaring war, and you are not communicating with your government at all. When the war is fought—not declared, Hardin, *fought*—the Foundation will be informed of it in due time by the atom blasts of the Anacreonian navy under the lead of my own son upon the flagship, *Wienis,* once a cruiser of the Imperial navy."

Hardin frowned. "When will all this happen?"

"If you're really interested, the ships of the fleet left Anacreon exactly fifty minutes ago, at eleven, and the first shot will be fired as soon as they sight Terminus, which should be at noon tomorrow. You may consider yourself a prisoner of war."

"That's exactly what I do consider myself, your highness," said Hardin, still frowning, "but I'm disappointed."

Wienis chuckled contemptuously. "Is that all?"

"Yes. I had thought that the moment of coronation—midnight, you know—would be the logical time to set the fleet in motion. Evidently, you wanted to start the war while you were still regent. It would have been more dramatic the other way."

The regent stared. "What in Space are you talking about?"

"Don't you understand?" said Hardin, softly. "I had set my counterstroke for midnight."

Wienis started from his chair. "You are not bluffing me. There is no counterstroke. If you are counting on the support of the other kingdoms, forget it. Their navies, combined, are no match for ours."

"I know that. I don't intend firing a shot. It is simply that the word went out a week ago that at midnight tonight, the planet Anacreon goes under the interdict."

"The interdict?"

"Yes. If you don't understand, I might explain that every priest in Anacreon is going on strike, unless I countermand the order. But I can't while I'm being held incommunicado; nor do I wish to even if I weren't." He leaned forward and added, with sudden animation, "Do you realize, your highness, that an attack on the Foundation is nothing short of sacrilege of the highest order?"

Wienis was groping visibly for self-control. "Give me none of that, Hardin. Save it for the mob."

"My dear Wienis, whoever do you think I *am* saving it for. I imagine that for the last half-hour every temple on Anacreon has been the center of a mob listening to a priest exhorting them upon that very subject. There's not a man or woman on Anac-

reon that doesn't know that their government has launched a vicious, unprovoked attack upon the center of their religion. But it lacks only four minutes of midnight now. You'd better go down to the ballroom to watch events. I'll be safe here with five guards outside the door." He leaned back in his chair, helped himself to another glass of Locris wine, and gazed at the ceiling with perfect indifference.

Wienis blistered the air with a muffled oath and rushed out of the room.

A hush had fallen over the elite in the ballroom, as a broad path was cleared for the throne. Lepold sat on it now, hands solidly on its arms, head high, face frozen. The huge chandeliers had dimmed and in the diffused multicolored light from the tiny Atomo bulbs that bespangled the vaulted ceiling, the royal aura shone out bravely, lifting high above his head to form a blazing coronet.

Wienis paused on the stairway. No one saw him; all eyes were on the throne. He clenched his fists and remained where he was; Hardin would *not* bluff him into silly action.

And then the throne stirred. Noiselessly, it lifted upward —and drifted. Off the dais, slowly down the steps, and then horizontally, six inches off the floor, it worked itself toward the huge, open window.

At the sound of the deep-toned bell that signified midnight, it stopped before the window—and the king's aura died.

For a frozen split second, the king did not move, face twisted in surprise, without an aura, merely human; and then the throne wobbled and fell the six inches to the floor with a crashing thump, just as every light in the palace went out.

Through the shrieking din and confusion, Wienis' bull voice sounded. "Get the flares! Get the flares!"

He buffeted right and left through the crowd and forced his way to the door. From without, palace guards had streamed into the darkness.

Somehow the flares were brought back to the ballroom;

flares that were to have been used in the gigantic torchlight procession through the streets of the city after the coronation.

Back to the ballroom guardsmen swarmed with torches—blue, green, and red; where the strange light lit up frightened, confused faces.

"There is no harm done," shouted Wienis. "Keep your places. Power will return in a moment."

He turned to the captain of the guard who stood stiffly at attention. "What is it, captain?"

"Your highness," was the instant response, "the palace is surrounded by the people of the city."

"What do they want?" snarled Wienis.

"A priest is at the head. He has been identified as High Priest Poly Verisof. He demands the immediate release of Mayor Salvor Hardin and cessation of the war against the Foundation." The report was made in the expressionless tones of an officer, but his eyes shifted uneasily.

Wienis cried, "If any of the rabble attempt to pass the palace gates, blast them out of existence. For the moment, nothing more. Let them howl! There will be an accounting tomorrow."

The torches had been distributed now, and the ballroom was again alight. Wienis rushed to the throne, still standing by the window, and dragged the stricken, wax-faced Lepold to his feet.

"Come with me." He cast one look out the window. The city was pitch-black. From below there were the hoarse confused cries of the mob. Only toward the right, where the Argolid Temple stood was there illumination. He swore angrily, and dragged the king away.

Wienis burst into his chambers, the five guardsmen at his heels. Lepold followed, wide-eyed, scared speechless.

"Hardin," said Wienis, huskily, "you are playing with forces too great for you."

The mayor ignored the speaker. In the pearly light of the pocket Atomo bulb at his side, he remained quietly seated, a slightly ironic smile on his face.

"Good morning, your majesty," he said to Lepold. "I congratulate you on your coronation."

"Hardin," cried Wienis again, "order your priests back to their jobs."

Hardin looked up coolly. "Order them yourself, Wienis, and see who is playing with forces too great for whom. Right now, there's not a wheel turning in Anacreon. There's not a light burning, except in the temples. There's not a drop of water running, except in the temples. On the wintry half of the planet, there's not a calorie of heat, except in the temples. The hospitals are taking in no more patients. The power plants have shut down. All ships are grounded. If you don't like it, Wienis, *you* can order the priests back to their jobs. *I* don't wish to."

"By Space, Hardin, I will. If it's to be a showdown, so be it. We'll see if your priests can withstand the army. Tonight, every temple on the planet will be put under army supervision."

"Very good, but how are you going to give the orders? Every line of communication on the planet is shut down. You'll find that radio won't work and the televisors won't work and the ultrawave won't work. In fact, the only communicator on the planet that will work—outside of the temples, of course—is the televisor right here in this room, and I've fitted it only for reception."

Wienis struggled vainly for breath, and Hardin continued, "If you wish you can order your army into the Argolid Temple just outside the palace and then use the ultrawave sets there to contact other portions of the planet. But if you do that, I'm afraid the army contingent will be cut to pieces by the mob, and then what will protect your palace, Wienis? And your *lives,* Wienis?"

Wienis said thickly, "We can hold out, devil. We'll last the day. Let the mob howl and let the power die, but we'll hold out. And when the news comes back that the Foundation has been taken, your precious mob will find upon what vacuum their religion has been built, and they'll desert your priests and turn against them. I give you until noon tomorrow, Hardin,

because you can stop the power on Anacreon but *you can't stop my fleet.*" His voice croaked exultantly. "They're on their way, Hardin, with the great cruiser you yourself ordered repaired, at the head."

Hardin replied lightly. "Yes, the cruiser I myself ordered repaired—but in my own way. Tell me, Wienis, have you ever heard of an ultrawave relay? No, I see you haven't. Well, in about two minutes you'll find out what one can do."

The televisor flashed to life as he spoke, and he amended, "No, in two seconds. Sit down, Wienis, and listen."

Theo Aporat was one of the very highest ranking priests of Anacreon. From the standpoint of precedence alone, he deserved his appointment as head priest-attendant upon the flagship *Wienis.*

But it was not only rank or precedence. He *knew* the ship. He had worked directly under the holy men from the Foundation itself in repairing the ship. He had gone over the motors under their orders. He had rewired the 'visors; revamped the communications system; replated the punctured hull; reinforced the beams. He had even been permitted to help while the wise men of the Foundation had installed a device so holy it had never been placed in any previous ship, but had been reserved only for this magnificent colossus of a vessel—the ultrawave relay.

It was no wonder that he felt heartsick over the purposes to which the glorious ship was perverted. He had never wanted to believe what Verisof had told him—that the ship was to be used for appalling wickedness; that its guns were to be turned on the great Foundation. Turned on that Foundation, where he had been trained as a youth, from which all blessedness was derived.

Yet he could not doubt now, after what the admiral had told him.

How could the king, divinely blessed, allow this abomina-

ble act? Or was it the king? Was it not, perhaps, an action of the accursed regent, Wienis, without the knowledge of the king at all. And it was the son of this same Wienis that was the admiral who five minutes before had told him:

"Attend to your souls and your blessings, priest. *I* will attend to my ship."

Aporat smiled crookedly. He would attend to his souls and his blessings—and also to his cursings; and Prince Lefkin would whine soon enough.

He had entered the general communications room now. His acolyte preceded him and the two officers in charge made no move to interfere. The head priest-attendant had the right of free entry anywhere on the ship.

"Close the door," Aporat ordered, and looked at the chronometer. It lacked five minutes of twelve. He had timed it well.

With quick practiced motions, he moved the little levers that opened all communications, so that every part of the two-mile-long ship was within reach of his voice and his image.

"Soldiers of the royal flagship *Wienis,* attend! It is your priest-attendant that speaks!" The sound of his voice reverberated, he knew, from the stern atom blast in the extreme rear to the navigation tables in the prow.

"Your ship," he cried, "is engaged in sacrilege. Without your knowledge, it is performing such an act that will doom the soul of every man among you to the eternal frigidity of space! Listen! It is the intention of your commander to take this ship to the Foundation and there to bombard that source of all blessings into submission to his sinful will. And since that is his intention, I, in the name of the Galactic Spirit, remove him from his command, for there is no command where the blessing of the Galactic Spirit has been withdrawn. The divine king himself may not maintain his kingship without the consent of the Spirit."

His voice took on a deeper tone, while the acolyte listened

with veneration and the two soldiers with mounting fear. "And because this ship is upon such a devil's errand, the blessing of the Spirit is removed from it as well."

He lifted his arms solemnly, and before a thousand televisors throughout the ship, soldiers cowered, as the stately image of their priest-attendant spoke:

"In the name of the Galactic Spirit and of his prophet, Hari Seldon, and of his interpreters, the holy men of the Foundation, I curse this ship. Let the televisors of this ship, which are its eyes, become blind. Let its grapples, which are its arms, be paralyzed. Let the atom blasts, which are its fists, lose their function. Let the motors, which is its heart, cease to beat. Let the communications, which is its voice, become dumb. Let its ventilations, which is its breath, fade. Let its lights, which is its soul, shrivel into nothing. In the name of the Galactic Spirit, I so curse this ship."

And with his last word, at the stroke of midnight, a hand, light-years distant in the Argolid Temple, opened an ultrawave relay, which at the instantaneous speed of the ultrawave, opened another on the flagship *Wienis.*

And the ship died!

For it is the chief characteristic of the religion of science, that it works, and that such curses as that of Aporat's are really deadly.

Aporat saw the darkness close down on the ship and heard the sudden ceasing of the soft, distant purring of the hyperatomic motors. He exulted and from the pocket of his long robe withdrew a self-powered Atomo bulb that filled the room with pearly light.

He looked down at the two soldiers who, brave men though they undoubtedly were, writhed on their knees in the last extremity of mortal terror. "Save our souls, your reverence. We are poor men, ignorant of the crimes of our leaders," one whimpered.

"Follow," said Aporat, sternly. "Your soul is not yet lost."

The ship was a turmoil of darkness in which fear was so thick and palpable, it was all but a miasmic smell. Soldiers crowded close wherever Aporat and his circle of light passed, striving to touch the hem of his robe, pleading for the tiniest scrap of mercy.

And always his answer was, "Follow me!"

He found Prince Lefkin, groping his way through the officers' quarters, cursing loudly for lights. The admiral stared at the priest-attendant with hating eyes.

"There you are!" Lefkin inherited his blue eyes from his mother, but there was that about the hook in his nose and the squint in his eye that marked him as the son of Wienis. "What is the meaning of your treasonable actions? Return the power to the ship. I am commander here."

"No longer," said Aporat, somberly.

Lefkin looked about wildly. "Seize that man. Arrest him, or, by Space, I will send every man within reach of my voice out the air lock in the nude." He paused, and then shrieked, "It is your admiral that orders. Arrest him."

Then, as he lost his head entirely, "Are you allowing yourselves to be fooled by this mountebank, this harlequin? Do you cringe before a religion compounded of clouds and moonbeams? This man is an impostor and the Galactic Spirit he speaks of a fraud of the imagination devised to—"

Aporat interrupted furiously. "Seize the blasphemer. You listen to him at the peril of your souls."

And promptly, the noble admiral went down under the clutching hands of a score of soldiers.

"Take him with you and follow me."

Aporat turned, and with Lefkin dragged along after him, and the corridors behind black with soldiery, he returned to the communications room. There, he ordered the ex-commander before the one televisor that worked.

"Order the rest of the fleet to cease course and to prepare for the return to Anacreon."

The disheveled Lefkin, bleeding, beaten, and half stunned, did so.

"And now," continued Aporat, grimly, "we are in contact with Anacreon on the ultrawave beam. Speak as I order you."

Lefkin made a gesture of negation, and the mob in the room, and the others crowding the corridor beyond, growled fearfully.

"Speak!" said Aporat. "Begin: The Anacreonian navy—"

Lefkin began.

There was absolute silence in Wienis' chambers when the image of Prince Lefkin appeared at the televisor. There had been one startled gasp from the regent at the haggard face and shredded uniform of his son, and then he collapsed into a chair, face contorted with surprise and apprehension.

Hardin listened stolidly, hands clasped lightly in his lap, while the just-crowned King Lepold sat shriveled in the most shadowy corner, biting spasmodically at his gold-braided sleeve. Even the soldiers had lost the emotionless stare that is the prerogative of the military, and, from where they lined up against the door, atom blasts ready, peered furtively at the figure upon the televisor.

Lefkin spoke, reluctantly, with a tired voice that paused at intervals as though he were being prompted—and not gently:

"The Anacreonian navy . . . aware of the nature of its mission . . . and refusing to be a party . . . to abominable sacrilege . . . is returning to Anacreon . . . with the following ultimatum issued . . . to those blaspheming sinners . . . who would dare to use profane force . . . against the Foundation . . . source of all blessings . . . and against the Galactic Spirit. Cease at once all war against . . . the true faith . . . and guarantee in a manner suiting us of the navy . . . as represented by our . . . priest-attendant, Theo Aporat . . . that such war will never in the future . . . be resumed, and that" —here a long pause, and then continuing—"and that the one-time prince regent, Wienis . . . be imprisoned . . . and tried

before an ecclesiastical court . . . for his crimes. Otherwise the royal navy . . . upon returning to Anacreon . . . will blast the palace to the ground . . . and take whatever other measures . . . are necessary . . . to destroy the nest of sinners . . . and the den of destroyers . . . of men's souls that now prevail."

The voice ended with half a sob and the screen went blank.

Hardin's fingers passed rapidly over the Atomo bulb and its light faded until in the dimness, the hitherto regent, the king, and the soldiers were hazy-edged shadows; and for the first time it could be seen that an aura encompassed Hardin.

It was not the blazing light that was the prerogative of kings, but one less spectacular, less impressive, and yet one more effective in its own way, and more useful.

Hardin's voice was softly ironic as he addressed the same Wienis who had one hour earlier declared him a prisoner of war and Terminus on the point of destruction, and who now was a huddled shadow, broken and silent.

"There is an old fable," said Hardin, "as old perhaps as humanity, for the oldest records containing it are merely copies of other records still older, that might interest you. It runs as follows:

"A horse having a wolf as a powerful and dangerous enemy lived in constant fear of his life. Being driven to desperation, it occurred to him to seek a strong ally. Whereupon he approached a man, and offered an alliance, pointing out that the wolf was likewise an enemy of the man. The man accepted the partnership at once and offered to kill the wolf immediately, if his new partner would only co-operate by placing his greater speed at the man's disposal. The horse was willing, and allowed the man to place bridle and saddle upon him. The man mounted, hunted down the wolf, and killed him.

"The horse, joyful and relieved, thanked the man, and said: 'Now that our enemy is dead, remove your bridle and saddle and restore my freedom.'

"Whereupon the man laughed loudly and replied, 'The

hell you say. Giddy-ap, Dobbin,' and applied the spurs with a will."

Silence still. The shadow that was Wienis did not stir.

Hardin continued quietly, "You see the analogy, I hope. In their anxiety to cement forever total domination over their own people, the kings of the Four Kingdoms accepted the religion of science that made them divine; and that same religion of science was their bridle and saddle, for it placed the life blood of atomic power in the hands of the priesthood—who took their orders from *us,* be it noted, and not from you. You killed the wolf, but could not get rid of the m—"

Wienis sprang to his feet and in the shadows, his eyes were maddened hollows. His voice was thick, incoherent. "And yet I'll get you. *You* won't escape. You'll rot. Let them blow us up. Let them blow everything up. *You'll* rot! I'll get *you!*

"Soldiers!" he thundered, hysterically. "Shoot me down that devil. Blast him! Blast him!"

Hardin turned about in his chair to face the soldiers and smiled. One aimed his atom blast and then lowered it. The others never budged. Salvor Hardin, mayor of Terminus, surrounded by that soft aura, smiling so confidently, and before whom all the power of Anacreon had crumbled to powder was too much for them, despite the orders of the shrieking maniac just beyond.

Wienis screamed a curse and staggered to the nearest soldier. Wildly, he wrested the atom blast from the man's hand—aimed it at Hardin, who didn't stir, shoved the lever and held it contacted.

The pale continuous beam impinged upon the force field that surrounded the mayor of Terminus and was sucked harmlessly to neutralization. Wienis pressed harder and laughed tearingly.

Hardin still smiled and his force-field aura scarcely brightened as it absorbed the energies of the atom blast. From his corner, Lepold covered his eyes and moaned.

And, with a yell of despair, Wienis changed his aim and

shot again—and toppled to the floor with his head blown into nothingness.

Hardin winced at the sight and muttered, "A man of 'direct action' to the end. The last refuge!"

The Time Vault was filled; filled far beyond the available seating capacity, and men lined the back of the room, three deep.

Salvor Hardin compared this large company with the few men attending the first appearance of Hari Seldon, thirty years earlier. There had only been six, then; the five old Encyclopedists—all dead now—and himself, the young figurehead of a mayor. It had been on that day, that he, with Yohan Lee's assistance had removed the "figurehead" stigma from his office.

It was quite different now; different in every respect. Every man of the City Council was awaiting Seldon's appearance. He, himself, was still mayor, but all-powerful now; and since the utter rout of Anacreon, all-popular. When he had returned from Anacreon with the news of the death of Wienis, and the new treaty signed with the trembling Lepold, he was greeted with a vote of confidence of shrieking unanimity. When this was followed in rapid order, by similar treaties signed with each of the other three kingdoms—treaties that gave the Foundation powers such as would forever prevent any attempts at attack similar to that of Anacreon's—torchlight processions had been held in every city street of Terminus. Not even Hari Seldon's name had been more loudly cheered.

Hardin's lips twitched. Such popularity had been his after the first crisis also.

Across the room, Sef Sermak and Lewis Bort were engaged in animated discussion, and recent events seemed to have put them out not at all. They had joined in the vote of confidence; made speeches in which they publicly admitted that they had been in the wrong, apologized handsomely for the use of certain phrases in earlier debates, excused themselves delicately by declaring they had merely followed the dictates of their

judgment and their conscience—and immediately launched a new Actionist campaign.

Yohan Lee touched Hardin's sleeve and pointed significantly to his watch.

Hardin looked up. "Hello there, Lee. Are you still sour? What's wrong now?"

"He's due in five minutes, isn't he?"

"I presume so. He appeared at noon last time."

"What if he doesn't?"

"Are you going to wear me down with your worries all your life? If he doesn't, he won't."

Lee frowned and shook his head slowly. "If this thing flops, we're in another mess. Without Seldon's backing for what we've done, Sermak will be free to start all over. He wants outright annexation of the Four Kingdoms, and immediate expansion of the Foundation—by force, if necessary. He's begun his campaign, already."

"I know. A fire eater must eat fire even if he has to kindle it himself. And you, Lee, have got to worry even if you must kill yourself to invent something to worry about."

Lee would have answered, but he lost his breath at just that moment—as the lights yellowed and went dim. He raised his arm to point to the glass cubicle that dominated half the room and then collapsed into a chair with a windy sigh.

Hardin himself straightened at the sight of the figure that now filled the cubicle—a figure in a wheel chair! He alone, of all those present could remember the day, decades ago, when that figure had appeared first. He had been young then, and the figure old. Since then, the figure had not aged a day, but he himself had in turn grown old.

The figure stared straight ahead, hands fingering a book in its lap.

It said, "I am Hari Seldon!" The voice was old and soft.

There was a breathless silence in the room and Hari Seldon continued conversationally, "This is the second time I've been

here. Of course, I don't know if any of you were here the first time. In fact, I have no way of telling, by sense perception, that there is anyone here at all, but that doesn't matter. If the second crisis has been overcome safely, you are bound to be here; there is no way out. If you are not here, then the second crisis has been too much for you."

He smiled engagingly. "I doubt *that,* however, for my figures show a nine-eight point four percent probability there are no significant deviations from the Plan in the first eighty years.

"According to our calculations, you have now reached domination of the barbarian kingdoms immediately surrounding the Foundation. Just as in the first crisis you held them off by the use of the Balance of Power, so in the second, you gained mastery by use of the Spiritual Power as against the Temporal.

"However, I might warn you here against overconfidence. It is not my way to grant you any foreknowledge in these recordings, but it would be safe to indicate that what you have now achieved is merely a new balance—though one in which your position is considerably better. The Spiritual Power, while sufficient to ward off attacks of the Temporal is *not* sufficient to attack in turn, because of the invariable growth of the counteracting force known as Regionalism, or Nationalism, as it should be called now that the Empire had died here in the Periphery. Against Nationalism, the Spiritual Power cannot prevail. I am telling you nothing new, I'm sure.

"You must pardon me, by the way, for speaking to you in this vague way. The terms I use are at best mere approximations, but none of you are qualified to understand the true symbology of Psycho-History, and so I must do the best I can.

"In any case, the Foundation is only at the start of the Path that leads to new Empire. The neighboring kingdoms, in manpower and resources are still overwhelmingly powerful as compared to yourselves. Outside them lies the vast tangled jungle of barbarism that extends around the entire breadth of the

Galaxy. Within that rim, there is still what is left of the Galactic Empire—and that, weakened and decaying though it is, is still incomparably mighty."

At this point, Hari Seldon lifted his book and opened it. His face grew solemn. "And never forget that there was *another* Foundation established eighty years ago; a Foundation at the other end of the Galaxy, at Star's End. They will always be there for consideration. Gentlemen, nine hundred and twenty years of the Plan stretch ahead of you. The problem is yours! Go to it!"

He dropped his eyes to his book and flicked out of existence, while the lights brightened to fullness. In the babble that followed, Lee leaned over to Hardin's ear. "He didn't say when he'd be back."

Hardin replied, "I know—but I *trust* that he won't return until you and I are safely and cozily dead!"

L. Ron Hubbard

WHEN SHADOWS FALL

Earth, the mother of a star-flung civilization, was dying, old and unremembered—but could earthmen really forget her?

THERE CAME A DAY when Earth lay dying, for planets also die. About her crept a ghost of atmosphere, the body eaten full away by iron rust and belching smoke until the plains, stretching wide, were sickly red, and no green showed from range to range and pole to pole.

As red as Mars, she was—dead, or nearly so, with the broken tumble of her cities peopled with the lizard and the wind. And the spaceports, which had given birth to the empires of space, were charred and indistinct upon the breast of Mother Earth.

So thought Lars, the Ranger, sitting in the window of the Greater Council Hall, watching from this eminence above the world and the red plains. He too was getting old. Strong and young he had voyaged far on dangerous ways to bring the treasure back, but now he voyaged no more. Science had prolonged the beating of his heart a thousand years beyond his time, but now he was old and stiff and the Council Chamber was cold.

The voices were thin behind him. They echoed oddly in this reverberant tomb. Seats were here for all the Council members of full six hundred systems. But the seats were empty now and their metal threw back the reedy whine of the clerks who called them all to order, reading names which had been gone these seven hundred years, all formal, all precise, and noting that they were not here.

Mankin, Grand President of the Confederated Systems, sat hunched and aged upon his dais, looking out upon his servants, listening to the threadbare rite.

"Capella!"

Silence.

"Rigel Centaurus!"

Silence.

"Deneb and Mizar and Betelgeuse!"

Silence.

And onward for six hundred names.

Silence.

For they were mighty there in the stars and Mother Earth was old. They were thriving across a mighty span of ten thousand light years. And Mother Earth no longer had any fuel. They had taken the oil from her deepest springs and the coal from her lowest mines. They had breathed her air and forged her steel and taken their argosies away. And behind them they had scant memory.

Earth had no power of money now, no goods, no trades, no fleet. And the finest of her strong young men had gone this long, long while. The lame, the halt, these and the dimmest of sight had strayed. Now there was nothing.

"Markab!"

"Achenar!"

"Polaris!"

No one sat there in those seats. No one.

Lars, the Ranger, stood and stiffly shook out his cloak. He couched the ceremonial space helmet in the crook of his arm and advanced formally to the dais. He bowed. He might have reported there in the ritual that the fleets were ready and the armies strong, that as General of Space he could assure them all was at peace in space.

But he was suddenly conscious of who they were and how things stood and he said nothing. There was Greto, once a wizard of skilled finance, sitting chin on breast in an adviser's chair. There was Smit, the valiant warrior of five hundred years ago. There was Mankin, tiny in his robe, crushed down by years and grief.

About Lars swirled, for an instant, the laughing staff of centuries back—young men with the giddy wine of high risk in their hearts. About Lars thundered the governing mandates of Earth to Space, to System Empires everywhere.

Then he saw the four of them and the clerks, alone here on a world which was nearly dead.

He broke ritual softly.

"There are no fleets and the armies have melted away. There is no fuel to burn in the homes, much less in the cannon. There is no food, there are no guns. I can no longer consider myself or this Council master of space and all that it contains."

They had all come there with a vague hope that it would break. It had broken. And Greto came to his feet, his wasted body mighty and imposing still.

There was silence for a while and then Greto turned to the dais. "I can report the same. For fifteen long years I could have said nearly as much. But I admit now that Earth is no more."

Smit lumbered upright. He scowled and clenched a black fist as he looked at Lars. "We have our fleets and our guns. Who has been here these last decades to know that they are without fodder. Bah! This thing can be solved!"

Mankin hunched lower, opened a drawer and brought out a tablet. As he set down his water glass, he belched politely and looked from one to the next bewildered, a little afraid. He had been able to handle many things in his day.

He fumbled with his reports and they were all the same. People were old and children were few. The food was gone and winter would be cold.

He cleared his throat. Hopefully he looked at Smit. "I was about to suggest that some measure be taken to remove the few thousands remaining here to some planet where food and fuel are not so dear. But I only hope that I can be advised—"

"You could remove nothing," said Greto, thrusting his hands into his pockets. "You could take nothing away. For

there's not fuel to lift more than twenty ships from the surface of Earth. The cause may be lost, but I am not lost. Earth is no longer tenable as she is. I propose that, with credits long past due, I force the purchase of atmosphere manufacturing equipment and other needful things."

"Credits!" said Smit. "What do I know of credits. If this thing is at last in the light and the need is desperate, I can give them the promise of guns in their middles. Need they know?"

Mankin looked from one to the other. He was heartened a little, for he had begun to see these fabulous men as little more than companions of his desultory chess games. But he did not heed them too much.

He turned to Lars. "What says the General of Armies and Admiral of Fleets?"

Lars, the Ranger, laid his helmet on the clerk's table. All semblance of formality fell from him as he took a pipe from his pocket, loaded it and lighted it with his finger ring. He looked from Mankin to Greto.

He said, "My fleet has not fired a jet in so many years that I have quite forgotten how many emergency charges were left aboard. I do know that mechanics and even officers have long since used all reserve atomic fuel for the benefit of lighting plants in the cities and our few remaining factories. At the most, on all our five continents I seriously doubt whether or not we retain enough fuel for more than two or three hundred light years. That is, of course, for one of our minor destroyers. Hardly enough for an extended cruise of space.

"At the old navy yard at the Chicago spaceport I daresay there may be four destroyers in more or less workable condition. Certainly there are enough spare parts in the battleships to complete them and make them usable. In our service lists we have a handful of technicians who though they may be old, still retain some of their touch.

"We could probably beg enough food in the way of volun-

tary contributions to provision the trip. Perhaps we are just dreaming. We may be at best only old men sitting in the sun and thinking thoughts much better carried out by young sinews. But I for one would like to try.

"Today I walked through the streets of this city and an illusion gripped me. Once more I was a young man returning from a colonization in the Capella system. The sidewalks were lined with people, the unbroken pavement glittered before me, thick with roses. Young boys and girls darted in and out amongst the crowd adding their shrill cries. I knew how great, how strong Earth was. And then, the illusion faded and the pavement was broken and the roses were thorny weeds, and an old woman whined for bread at the street corner. I saw but one child in half a hundred blocks of walking, and he was ill.

"An old man is old and has nothing but memory. It is youth which plans, endeavors and succeeds. Frankly, gentlemen, I have but little hope. But I cannot stay, while even a few years remain, and know that Mother Earth which I served for all my thousand years is dying here, forgotten, and unmourned."

He sat looking at them a little while, puffing his pipe, swinging an ancient but well-polished boot, not seeing them but remembering.

Smit again blustered to his feet. "We are speaking of dreams. I know very little of dreams but I demand to be told why our friend desires to beg for food? Are we still not the Government? Must we dig in garbage cans to provision our Government's expeditions and crawl in dungheaps for a few crumbs of combustium? The first right of any government is to enforce its will upon the people.

"I highly approve of the expedition. I demand that I be allowed to take one section of it. And I desire, if this matter be agreed upon, that all necessary writs and manifestos be placed in my hands to make it a reality."

Mankin looked nervous, took another tablet and washed it down. It had been three hundred years since an expedition of any major import had been planned in this chamber. All the

major expeditions were formed on Centauri now, where food, fuel, and crews were plentiful. The bombastic tone of Smit had battered Mankin. He looked at Greto.

Greto was aware of the eyes upon him. He shifted his feet nervously. Hesitantly he said, "I approve of this expedition even though I have little hope of its success, for it will be very difficult to attend to the financing here. Our funds are in an impossible condition. Our currency is worthless. I take it that at least two units, perhaps four will be sent. I myself would like the command of a unit. But how we are to finance the voyageurs is a problem I cannot readily solve. One Earth dollar can be valued no higher than one-thousandth of a cent on Capella. This means I must assemble millions." He rubbed his thumb against his forefinger. "They like money out there in those systems."

"Print it," said Smit. "Who'll know the difference? And if you are to command one of the units then my advice is to print a lot of it."

Mankin coughed. He looked at the three of them and knew that it was he who must make the decision. A small flame of hope was leaping up in him now. He thrilled to the thought that Earth might once more prosper and send forth and receive commerce and trade. The strangely renewed vitality in Smit's voice gave him assurance.

"Gentlemen," he said, "you give me courage. Unless one of you has some objection to offer, I hereby decree that, if possible, three units be dispatched singly on this mission. They will progress as far as possible through the empires of space and the outer worlds and will return with whatever succor or tidings each has been able to obtain. This mission would be worth while even if you return with no more than a few hundred pounds of Element One Hundred and Seventy-Six. There must be some way, gentlemen, there *must* be some way."

Lars the Ranger stood up. "I shall order the preparation

of three destroyer units and do what I can to provide them with fuel and food. If it is your will, I shall command one of them and place two at the disposition of Smit and Greto."

He about-faced and approached the door, where he turned.

He said, "I can hardly believe, gentlemen, that we have at last decided upon a course of vigorous action. Who knows but what we shall succeed?" The door of the Grand Council Chamber shut behind him.

Rumors spread far and wide across the planet and hope attended by many doubts turned people's eyes to the night skys where the stars blinked strong and young. A few broadcasting systems expended hoarded ergs of power to announce the departures of the expedition. Several old time glass paper editions of the newspapers in Greater Europa were given over exclusively to accounts of the various explorers. Smit was cited as the commander most likely to succeed, and his boasts at the spaceport before he took off were quoted as the purest truth.

A week after Smit's departure much space and talk was devoted to the fabulous Greto whose reputation as a financier had been founded fifteen hundred years ago with the Capella exploitation. They neglected the fact that it had been his further speculations which had impoverished him. They placed their hopes in his ability to "flim-flam the money moguls of the greater empires."

When it came the time of Lars, the Ranger, to depart most of the news value of the expeditions was gone. Lars, the Ranger, had very little to say at the Port. No one questioned the mechanics or remarked the fact that he had prudently taken weeks to groom his ship and to choose his crew. But old officers came and offered this one a map, that one a chart, and another a handful of bullets. Men who had ranged far and knew, were on hand to bid him Godspeed and good luck among the spinning suns, the comets, and flaming stars. They toasted him in farewell, and Lars, the Ranger, was gone.

Earth, only half-remembering, waited and starved. Winter

came. Frugal of their power, the expedition ships transmitted no messages. And Mankin, day after day moving thin-worn chessmen idly about on his board, bided his time.

The plains and mountains lay red, the thin air moaned bitterly cold about the towers of the government building. Sand drifted across the char-marks on the rocket field. Then spring came, and summer came, and were gone again and another winter lay coldly dusty upon Earth's breast.

One bitter morning a battered and rusty "Mercy" which had borne Greto came to rest on the Government field. The instant it was cited each man thought of his rank and vied at the doors of the council chambers to give welcome to Greto. But it was no smooth and wily treasurer who came up to the big black doors. Greto hobbled, tired and bent, his space clothing ragged and out of repair. He was worn by hunger and all the bitter hardship of space. He did not need to push through the crowd; his appearance alone compelled it to fall back.

The doors opened before him and he entered. Mankin was about to mount the dais in formality when he saw Greto.

He stopped. Tears of sympathy leaped into his eyes. He came forward, arms outstretched. "Oh, my friend, my old friend," and he quickly seated him in a chair and brought him wine.

"Where are your officers and crew?" said Mankin. Greto did not need to answer. His eyes remained steadily on the floor. He turned over one hand and let it drop.

"From hunger when we had no food, and from sickness for which we had no medicine. I am ashamed, Mankin. I am ashamed to be here."

Mankin sat on a small stool and folded his hands in his lap. "I am sure you did what you could, Greto. Nothing can tell you how sorry I am. Perhaps things do not go so well with them."

Greto shook with sudden anger. He lifted his worn,

starved face. His eyes glared up through the ceiling and at the unseen stars.

"Things go well enough up there. They are fat, they are wealthy." He grasped Mankin's hand. "They hate us. They hate us for the rules and mandates we put upon them. They hate us for the taxes that once we levied. They hate us for the wars we fought to stop. They hate us for the centuries we depreciated their currency to uphold the value of our own. Pluteron in the Alpha Draco Empire laughed at me when I came. He laughed with hysteria and was still laughing when I left. There was no mirth in that laughter. There was only satisfaction. They hate us, Mankin. We shall get nothing from them—nothing!

"Cythara of Betelgeuse took up a collection among the officers of his court to put a wreath in orbit about our sun after we are gone. I have been driven by laughter, by scorn."

He sat for a little while, chin on his breast. "Help me to my house, Mankin. I am afraid I have not long to live."

But it was Smit's return which spread the blackness of gloom across the world. For Smit was neither starved nor weary. Hate stood like a black aura around him through which cracked the lightning of his voice. Feet planted wide apart he stood in the spaceport. He met all who came to him with such a tirade concerning the ungratefulness of the children in space that the world was shocked into hopeless rage.

He had gone the length of space, stopping everywhere he deemed it expedient. Everywhere he went he had met violence and suspicion. He had crossed the trail of Greto several times. He spoke of the Greto Plan to stabilize the currency of all space, with Earth as the central banking house, and the brutality with which the scheme, quite feasible, had been everywhere rejected. He told how Greto had sought to borrow a sufficient amount to rehabilitate Earth, and the outrageous interest that had been promised and how the governments which Greto had approached had fought Smit with the plan on his arrival.

But this was not the seat of bitterness with Smit. He told them of spacefleets equipped with weapons more deadly than those that Earth had ever known. One governor had given him a slingshot and had ordered him to fight a soldier equipped with a magnetic snare. And Smit had spent two weeks in a foul prison for smashing the governor's teeth.

He had been refused food, fuel, water, and medical attention for his men. He had been scorned and spat upon and mobbed from Centauri to Unuk. He had been insulted, rejected, and given messages of such insulting import for Earth that here, delivering them, he seemed about to burst apart with rage.

The story of his return journey was one of violence. He had brought back his men but need of fuel had forced him to loot the government arsenal at Kalrak. He had left the city burning behind him. Smit preached war, he preached it to old men, to rusted and broken machines, to tumbled and moss-grown walls.

Mankin opened the Government radio for him and for four days Smit vainly attempted to recruit technicians and scientists to reconstruct the weapons necessary to fight a war. Immediately after a broadcast in which he had attempted to stir up interest in an ancient and long unused idea of germ warfare, an old officer of the republic's fleet barred his way as he attempted to leave the broadcasting building.

Smit, still affecting the dress he had worn on his return, filthy and ragged and seared as it might be, was offended at the clean well-mended gray uniform.

"If you would help me, what are you doing here?" said Smit. "I have ordered all men to gather in the military arsenal if they wish to forward this campaign."

The old officer smiled, undaunted by the blunt rage of Smit. "General," he said, "I have no ideas and I doubt that you would listen to any from me, but I was at the arsenal this morning and I do not think that we could do anything without fuel, weapons or the materials with which to make them. But I do

not come here to advise you to abandon your idea. It will fail of its own accord. I came to ask you for news of Lars, the Rangers. Certainly if you found Greto's track, you must have news of Lars."

Smit saw Mankin and several others were coming up the steps and welcomed them as witnesses.

"Yes, I have news of Lars. He had been in three places before I had arrived. He had said nothing, he had done nothing."

The old officer looked incredulous. "General, I am not of your branch of service and I would not argue with you, but I believe you play carelessly with the reputation of one who, if he commanded it, could have won an audience with whomever he wished, wherever he went."

Smit was stunned. "Yes, certainly, audiences he did have. But he was given no aid. This I know."

Mankin was interested. "Did you learn nothing of him?" he asked Smit.

"All I know is that when I received audience after him I was heard coldly. My requests were refused, my demands were laughed at, and I was personally insulted. I know but little of this but I can tell you this certainly that you can expect nothing of Lars, the Ranger."

The old officer turned away and as he went down the steps was seen to be laughing to himself.

For more than two months the campaign of Smit's raged feebly across the worn, arid surface of Earth. Where he had recruited, no army stood; where he had built, only junk could be seen. The waning efforts of technicians and bacteriologists finally stopped. Earth fell once more into an apathy, and at night men no longer looked hopefully at the stars.

In the first days of spring a mutter of reports came from the spaceport, and people wandered toward it in surprise to find a destroyer there, polished hull carefully repaired and a crew "at quarters" while the commander disembarked. An officer rushed from the crowd and grasped the hand of the voyageur.

"Lars," he cried. And at the shout, several men in the crowd ran across the field to form a group around the returned warrior. But the greatest number turned away. Two expeditions had arrived and the dream was spent. Hope was gone.

"What news?" said the old officer. Lars shrugged wearily. He had aged.

"Little enough, my friend," Lars answered. "They are vastly busy with their own concerns out there, but here I have brought at least some packets of food." And the quartermaster behind him signaled that the presents be brought down. When they were distributed, Lars walked toward the city.

Mankin heard of Lars' arrival but did not go forth to meet him, for two disappointments were all that he could possibly bear. He had been sitting in the chill of the council room when he received the tidings from his clerk. He nodded sadly.

Lars entered the chamber and stood for a little while, feeling the coldness of it and looking at the withered Mankin in his chair.

Mankin spoke, "You have been gone for a long while, Lars."

"What of Greto and Smit?"

"They have both returned. Greto, I am afraid, is dying. He is sick rather with insults than with disease. Smit for some time was a man deprived of reason and he wanders now about the countryside speaking to no one, eating only what is thrust into his hand. He is a beaten man, Lars. This expedition was ill-starred. It would have been better that we had died at least with our dignity rather than to beg for crusts and make fools laugh. As the iron has eaten our air so has this expedition drained the last sparks of vitality from the two who went before you. It was badly timed, Lars."

Lars was about to speak, but Mankin again held up his hand.

"No, do not tell me. You have brought back your men, you have brought back your ship. Perhaps you have begged a little

fuel, perhaps you have a little food. But you have nothing with which to save Earth. This I know."

Lars shook his head slowly. "You are right, Mankin, I have brought nothing. I did not expect to receive anything, since I did not beg, I did not threaten. In some places I heard of Greto's schemes. They hated him because they hated the financial control which Earth in her power exercised over the outer empires. In all the immensity of space there is not a man who would give a plugged mean coin to save a single child on Earth, if it meant the restoring of the financial tyranny which once we exercised."

"I know this," said Mankin sadly. "We hoped for too much."

Lars again shook his head. "No, Mankin, we were greedy for too much. Perhaps I have failed. I do not know."

"What did you tell them?" asked Mankin. "What did you tell them that you dare believe they might help us?"

"I did not tell them very much. And I thought first of how I might gain their good will. I found it could not be purchased or begged. I am afraid, Mankin, that I have amused myself at your expense."

This shocked the ancient president. He leaped to his feet. "You had better explain that, Lars!"

"I dined with them," said Lars. "I looked at their fleets, I admired their dancing girls, I saw their crops, and had the old battle places pointed out to me. And I told them stories. And this, reminding them, stimulated many tales. I asked for nothing, Mankin, so I did not expect anything. I hope for nothing now. I am sorry that this is the report I must render."

"You had better go," said Mankin quietly.

For a month Lars, nearly ostracized, lived at the navy yard in the improved destroyer, receiving old shipmates, giving presents from his frugal stock but going unaddressed in the streets. He heard nothing but condemnation for "the man who did not even try."

Then, one morning the town was shaken by a terrible roar and with certainty that vengeance had been their return for the expedition, the populace tumbled from their beds to find six great gleaming spheres on the spaceport landing. They were larger than any other space vehicle these people on Earth had ever seen. From them came tumbling young men, well-fed and laughing. Then they began to unload equipment.

No one dared address the newcomers. With an hysterical certainty that they were about to be enslaved the people of the capital, taking what little food they had began to stream out of the far gate. A radio message from Asia was broadcast to the effect that fourteen huge vessels, unidentified, were landing troops. Greater Europa reported being besieged but said that no overt act had been made and all was being done to evacuate the population before bombardment.

Mankin received the reports in terror on his dais. He called together his cabinet, pointedly omitting Lars. He spent some fruitless six hours in feeble and frightened debate on measures of defense. No messenger came to him from the enemy forces and, at last, he felt that he must surrender before lives were lost.

When he and his staff went forward from the palace, they found that nineteen new vessels were lying in the plain beyond the city. And that an encampment was being hastily constructed.

He was met by four boisterous young officers, each one from a different empire, all in working dress. The first of them, caught by the dignity of the cabinet and the president, and recognizing them as people of authority quickly turned to his friends and sent one of them racing back toward a nearby sphere.

Mankin took a grip on his courage. He had never looked for the day when he would have to surrender Earth to an attacking force. But now that he saw that it could not be helped, he could only try to carry it forth with dignity.

He was somewhat amazed at the courteous mien of the

young officers who did not speak to him but respectfully waited for a sign from the large spaceship.

In a moment or two, hastily pulling on a uniform coat and adjusting his epaulettes, a large middle-aged man strode toward the group. He stopped at a distance of five paces from Mankin, identified the chest ribbon and the ancient robe of office and then spoke. "You are President Mankin?" he asked politely.

Mankin answered, "Yes. Whom have I the pleasure of addressing?"

"I am General Collingsby," he said. With a crisp military bow Collingsby extended his hand. "It is an honor to meet you, sir. I am sorry I occasioned you the difficulty of having to come to the port. I am ashamed at my own discourtesy in not having called on you immediately. However, command has its responsibilities and, as these are supply forces, there has been considerable trouble in establishing consignments and in distributing our various fleets over the surface of the Earth here."

He coughed. "Excuse me, sir, but, by Jupiter, your air is certainly thin here! My blood pressure must be up off the meter. But here, permit me to invite you into my cabin where it is more comfortable."

Mankin straightened his shoulders. "Sir, I thank you for your courtesy. I can only say that I hope you will observe the various usages of war and that you will occasion as little suffering as possible."

General Collingsby looked startled and then embarrassed.

"My dear sir," he stammered, "I do not understand you. Has not my own Governor, Voxperius, radioed you concerning our arrival?"

"General," said Mankin, "the ionized beams of communication between Earth and her former colonies have been severed for more than seventy years. I am afraid we have not had sufficient power to continue them in operation."

Collingsby looked at his staff in round-eyed wonder and

then at Mankin. He looked beyond the group before him and his face lighted. "Perhaps this gentleman can clarify matters."

Mankin turned to see Lars, the Ranger, with a small group of officers, approaching.

Collingsby eagerly grasped Lars by the arm. "My dear fellow, would you please acquaint your president with the true condition of affairs. By Jupiter, I had not thought of it before but it certainly does look like an invasion. Oh, I am ashamed of this, Lars! I am ashamed of it! What a panic we must have caused. But I was certain that my Government and the other governments had sent Earth messages. Didn't you know, Lars?"

Mankin was bewildered. For the first time he had a clear look at what was happening in the encampment. He saw huge machines being unloaded. He saw that men were already at work with some of them. Beams were playing across the plains and at each place one struck puffs of smoke rose. Others were drilling into the earth and sending up high plumes of exhaust. Mankin suddenly realized that they must be re-oxygenators replacing humus, injecting heat under the crust. A faintness came over him. He could not believe what he saw and he could not hope.

Lars turned to him. "I could not tell you," he said. "I could not promise you. But truly, I did nothing."

Collingsby interrupted with a sharp "No, he did nothing. He came and sang us old ballads and told us the hero tales of Earth. He reminded us of the heritage we had behind us and of what we owed the mother planet. He made us see the quiet ocean and the green hills where our fathers lived. And then, having shrugged and said it was no more, he moved on.

"He went all through space and told his tales. In the empires everywhere school children formed subscriptions, governments formed expeditions, scientists worked on what had to be done—but here, certainly, President Mankin, you can see how this would be. After all, Earth is the 'Mother' of all the stars. Somewhere in the heart of every man in the empires lurks a fondness for the birthplace of his race. For our histories are full

of Earth and all our stories, all our great triumphs, contain the name of Earth. Should we then let her die?

"And so we have come here, these combined forces, to make the old land green again, to replace the oceans, to rebuild an atmosphere, to make the rivers run, to put fish in the streams, and game in the hills.

"We'll make this place a shrine, complete and vital as once it was, where Inter-Empire councils may arbitrate the disputes of space. Here we can meet on the common ground of birth and, in the halo of her greatness, find the answers to our problems. For, in the long run the problems and the answers change very little. All the fundamental questions have been asked and solved on Earth before; and they will be again.

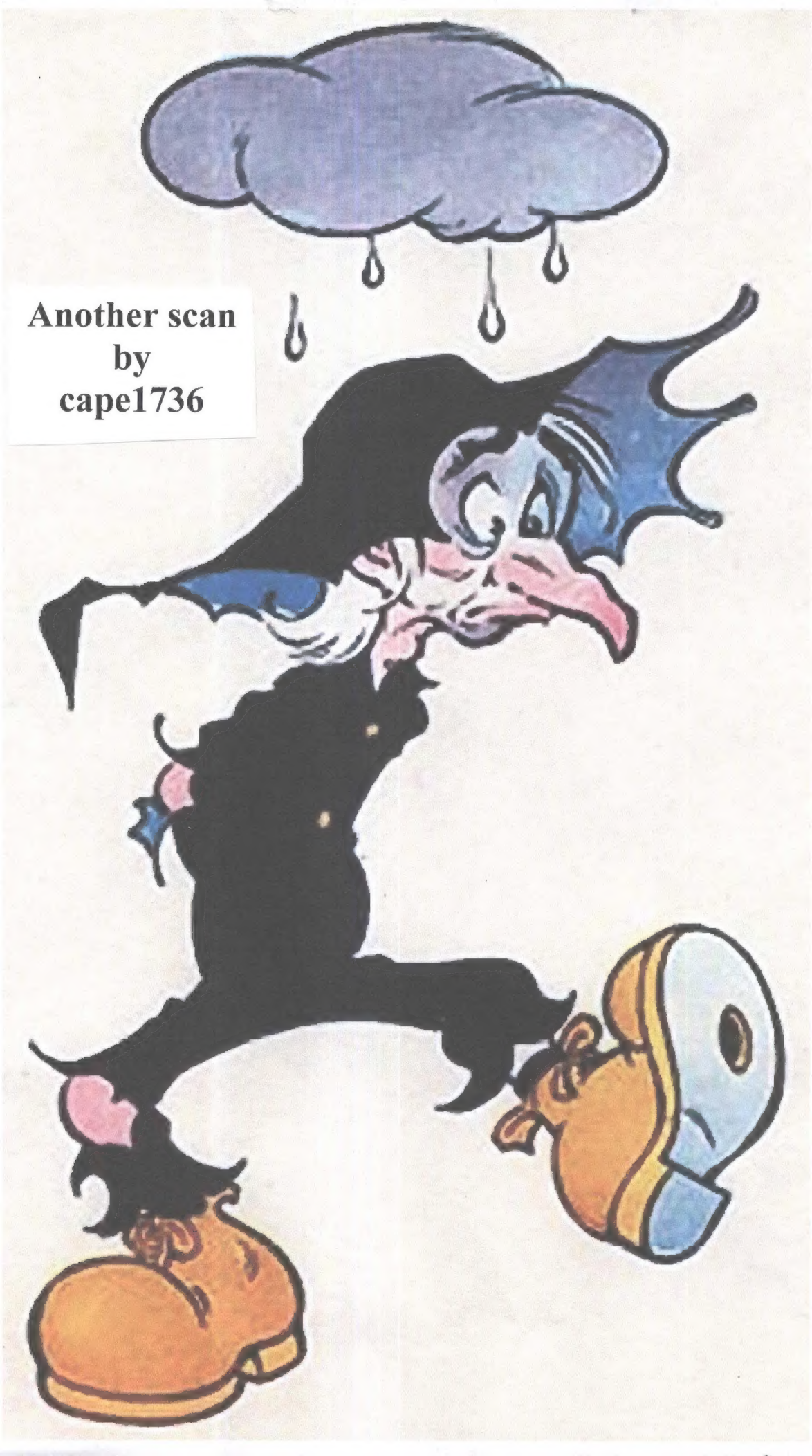
"But come, we have less than a week to repair all this," said Collingsby. He turned to Lars. "It's just a week to July fourth, is it not? And that was the anniversary of the launching of the first expedition to Earth's moon, wasn't it?"

Lars nodded.

"Come into my ship where we can have some refreshments," said Collingsby. "There will be time enough to stand around in the sun when all these fields are getting green again."

They looked at Lars and he smiled at them. Mankin swallowed back a lump of emotion in his throat, and said:

"Lars, why didn't you tell me you had saved Earth with a song?"


Another scan
by
cape1736